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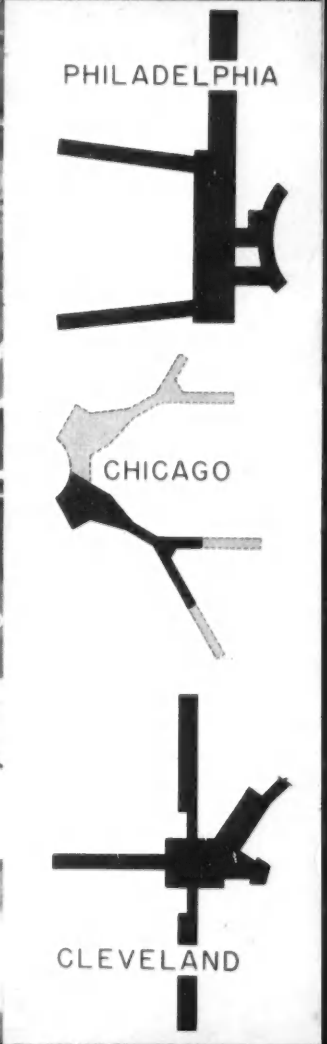

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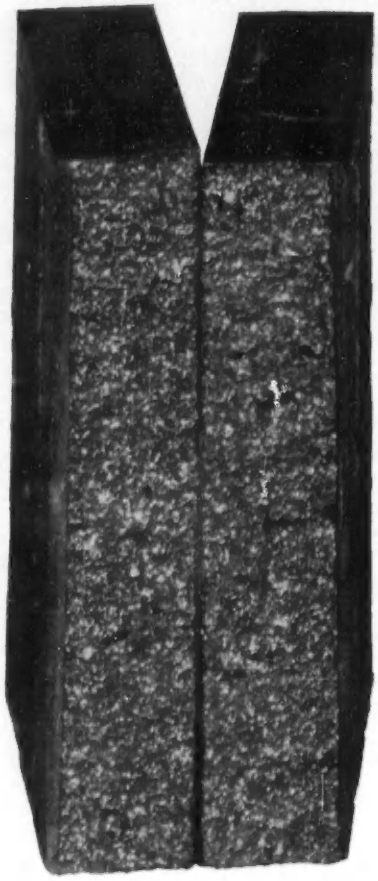
HERE IS THE DIFFERENCE

WROUGHT IRON



STEEL

These are actual photographs of fractured pieces of wrought iron and steel. The picture at the left shows the fibrous structure of wrought iron. How this differs from the crystalline structure of steel is readily apparent. It is the presence of many thousands of tiny threads of glass-like iron silicate that gives wrought iron this unique fibrous structure and it is this structural feature, duplicated in no other metal, that gives wrought iron its superior resistance to corrosion and fatigue stresses.

While the initial cost may be higher, actual service records in numerous applications prove that wrought iron is the most economical buy because it lasts longer. Ask any Byers Field Service Engineer to show you fractured pieces, similar to those illustrated above. Write for our booklet, "The ABC's of Wrought Iron."

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Department: New York, N.Y.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY STEEL PRODUCTS

WATER AND RUBBER JOIN FORCES

PREPARING SITE FOR 6,500,000-YARD DAM!

THEY TOOK A TIP FROM THE FORTY-NINERS at Cherry Valley Dam, now rising in California's Sierras — for much of the overburden clung to slopes too steep for equipment. So they washed it down into the valley with high-pressure water jets, which also were used to wash out fines (as shown above). Then crawlers and the following rubber-tired equipment took over—15 scrapers, 35 haulers, 3 water trucks, 3 compactors, 14 pickups, 2 grease trucks, 3 flat-bed trailers and a couple of tank trucks. The mountain goats would hardly know the old place now!

BIG TIRE STOCK PILE ON JOB speeds changes for inspection and maintenance.

You find "Goodyear is there" on more and more jobs where the going is rugged—and there's no time for down time. That's because Goodyears, always tough brutes, are now more enduring than ever—for they're made with Goodyear's new, exclusive, Triple-Tempered (3-T) cord!

This patented 3-T process keeps Nylon or Rayon cord at its most bruise-resistant, heat-resistant point. It controls tire growth, reduces tread and body failures to new LOWS—keeps tires in shape for *extra* re-lugs and recaps. Next time you buy or specify any type tire, remember *only* Goodyears have 3-T Cord! Goodyear, Truck Tire Dept., Akron 16, Ohio.

HARD ROCK LUG

HARD ROCK RIB

ALL-WEATHER

SURE-GRIP

FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

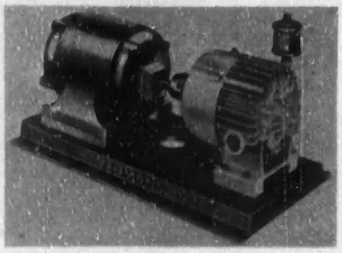
And Remember

NOTHING ELSE CAN TAKE IT LIKE 3-T NYLON!

Sure-Grip, All-Weather—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

BRIEFS from the Yeomans Guard

NEW ROTARY COMPRESSOR and VACUUM PUMP



Recommended for pressures up to 25 lb. gauge and vacua up to 28" Hg.

Adaptable to a wide range of applications—will handle ammonia and other gases

Positive lubrication system

This new #545 Rotary Air Compressor and Vacuum Pump has a simplicity in design and operation which makes it one of the most economical units available per pound of cubic air delivered.

The #545 is of the positive displacement, multi-cellular rotary single stage type suitable for direct connection to motor, gasoline engine, belt, or other form of drive. Continuous lubrication of blades and housing is secured through a suction oil-wick lubrication. An oil mist lubricator has proved in service to be the best method of providing oil to the blade area.

Positive Cooling Action. Positive blower cooling action accomplished with an external fan and deflector.

Compact and Efficient. Rotor has a number of radial slots milled along its full length. In each slot is inserted a light weight, extremely tough composition blade. Action of the blades is dependent wholly upon centrifugal force—no springs are required—and any wear is compensated for automatically.

Literature is now available on this new #545 Rotary Compressor and Vacuum Pump. Bulletin 7545 gives complete description and specifications. Contact your local Yeomans representative listed in the Yellow Pages of your telephone book under "Pumps", or attach coupon to company letterhead and mail direct to factory.

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YEOMANS

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1991-1 No. Ruby Street, Melrose Park, Illinois

Please send Bulletin 7545 giving description and specifications of Yeomans New #545 Rotary Compressor and Vacuum Pump.

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HERE is a new Northwest Model 6 Crane putting up the big supporting beams for a large Chicago Bridge & Iron tank near Hammond.

Northwests smooth out the tricky jobs. The smoother operation of Uniform Pressure Swing Clutches makes spotting the load easier. They pay out in setting steel or stone by eliminating the jerks and grabs that set a load swinging. Northwest Crawlers make maneuvering and changing position with a load easier. The "Feather-Touch" Clutch Control gives ease of operation without the complications of valves, pumps and tubing. There are no delays occassioned by waiting for special experience to care for intricate adjustments in far off locations.

Smooth, easy convertibility that results in operation and performance over and above a mere change of booms, means increased output whether converting to a Shovel, a Dragline or a Pullshovel.

These and many other reasons have made Northwests a favorite with Indiana contractors. Ask for more details and let us tell you about them.

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Perhaps Rubber Tired Equipment will do your job better. The Northwest Truck Crane brings you a combination of advantages found in no other similar machine. Get the full story before you buy.

Has Your Shovel Stood the ROCK TEST

NORTHWEST

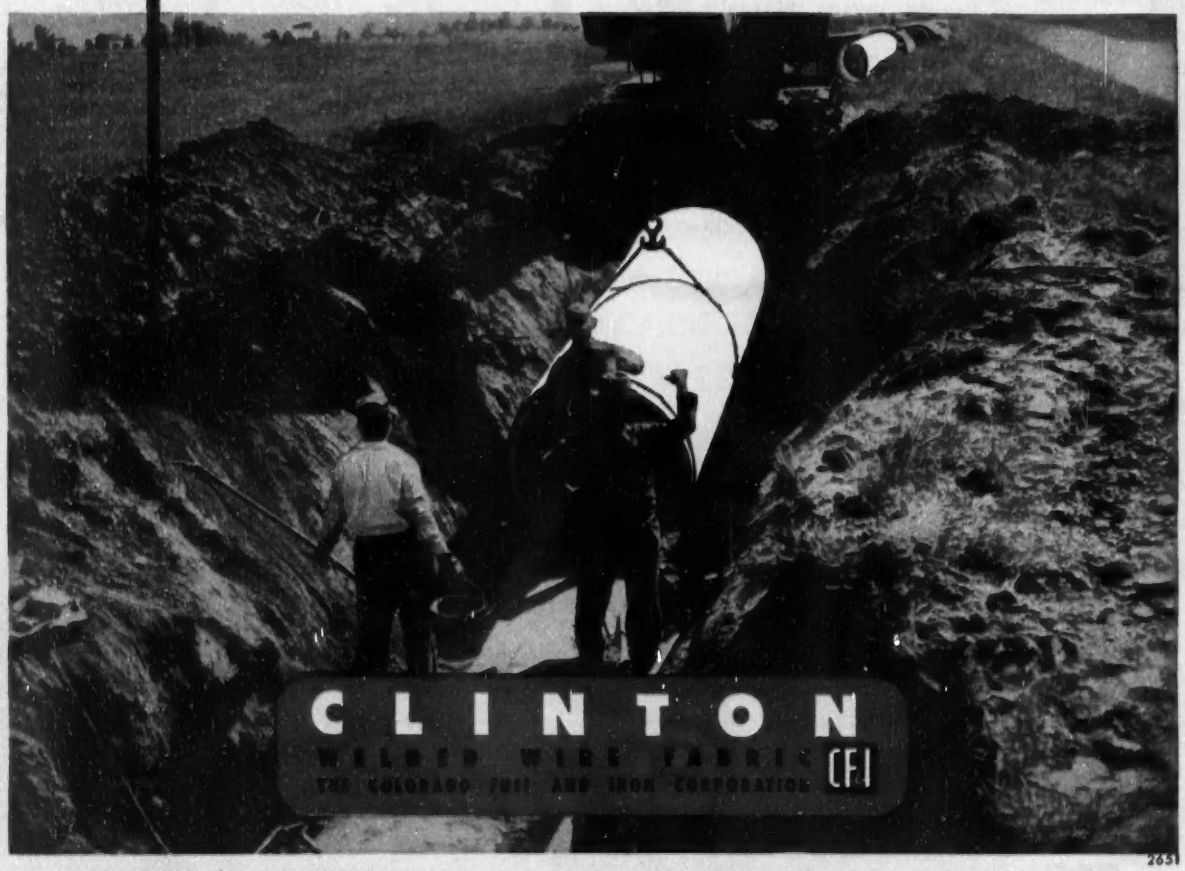
CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

here's the backbone of concrete pipe...

CLINTON WELDED WIRE FABRIC

Concrete pipe reinforced with welded wire fabric has the structural strength and freedom from corrosion necessary for maintenance-free pipe systems. Whether for new construction or for repair, when you specify concrete pipe reinforced with Clinton Welded Wire Fabric, you have assurance of a well-built job and a minimum of expense in the future.

Clinton Welded Wire Fabric meets all A.S.T.M. specifications and is available in the complete range of gauges and mesh sizes.



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SOUTH GATE, *California* GOES AMERICAN

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

Chief Engineer and
General Manager
A. M. Rawn

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John A. Artukovich & Sons, Co., Inc.

South Gate needed good sewer pipe . . . and needed it *fast.*

American Vitrified Products Co., with its new West Coast plant, could make *immediate* delivery of several thousand feet of 63-inch reinforced concrete pipe in 8-foot lengths for this joint outfall sewer for the County Sanitation Districts, Los Angeles County.

American's policy of expanding their plants to serve growing areas paid dividends for *both* county and contractor.

Concrete pipe is just one of the many products manufactured in our plants across the nation. We also produce clay pipe, flue liners, both glazed and unglazed, clay liner plates and the new Amvit Jointed clay sewer pipe.

For more information, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

SINCE 1900

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Patent Pending

Plants Across the Nation . . . Brazil, Indiana • Chicago, Illinois • Cleveland, Ohio • Crawfordsville, Indiana • Detroit, Michigan • East Liverpool, Ohio
Fenton, Michigan • Grand Ledge, Michigan • Lisbon, Ohio • Los Angeles, California • Milwaukee, Wisconsin • South Bend, Indiana • Uhrichsville, Ohio

ladder-type Trenchliners

dig 16 inches to 6 FEET wide

Parsons ladder-type Trenchliners,® in 3 heavy-duty sizes, cover a wide range of trench widths and depths. For example . . . maximum cutting widths are 36, 42 and 72 inches, depending on model . . . with digging depths of 8½, 12½, and 17 feet. In addition to big work capacity, notice the many production boosting advantages you get when you put one of these Trenchliners on your job . . .

make vertical set-ins

Reverse traction lets Trenchliner hold the end of the digging boom flush with lateral ditch or against foundation wall . . . maintains a vertical face all the way down to bottom of trench.

undercut sidewalks

Sloping ladder-type boom reaches far under sidewalks from both sides . . . also undercuts curbs and gutters, cross pipes, and existing mains. Saves hand work.

hug curbs, buildings

When working next to curbs, fence rows or buildings, boom is shiftable across full width of carriage . . . digs behind either crawler. (Model illustrated cuts within 10 inches of side obstructions.)

dodge poles

Spoil conveyor shifts through Trenchliner by power in less than 1 minute to dump right or left . . . side-steps poles, trees without swerving from grade line.

load trucks

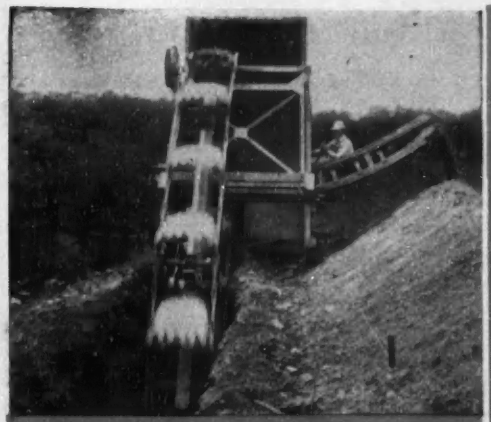
Arc-type spoil conveyor reaches up and out, loads into trucks. Discharge heights range from 6 ft.-4 in. up to 8 ft.-9 in., depending on model.

All these big production advantages are available to you in 3 sizes of ladder-type Trenchliners. Ask your Parsons distributor about the size best suited to your work. Also: 2 wheel-type Trenchliners, and small, rubber-tired Trenchmobile.®

PARSONS *Trenchliners*

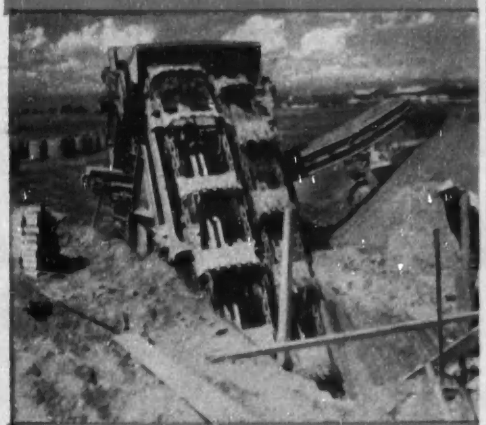
PARSONS COMPANY, NEWTON, IOWA (Koehring Subsidiary)

CP-632



221 Trenchliner cuts 16 to 36 inches wide, at depths to 8½ feet. Shiftable boom digs as efficiently behind either crawler as it does in center position. Power-shift conveyor gives controlled discharge . . . puts spoil back well back from edge of the trench.

250 Trenchliner digs 16 to 42 inches wide, at depths to 12½ feet . . . has ample truck-height discharge. On ladder-type Trenchliners, spoil conveyor is independent of digging boom, maintains constant discharge height *regardless* of position of boom.



Big 310 Trenchliner, shown here with dual booms, has 6-foot cutting width, and 12-foot depth. When used with single boom, it digs 18 to 54 in. wide, 17 ft. deep. Buckets and side-cutters on all Trenchliners equipped with Parsons easy-in, easy-out "Tap-In" teeth.

Kwik-Mix 10, 14 cu. ft. bituminous mixers

With Kwik-Mix non-tilting 10 and 14 cu. ft. Bituminous Mixers you get: wide flow-line skip, hinged skip track, pug-mill-type mixing, accurate heat control, even bitumen distribution, 6-second end discharge. Both sizes can be used with Tower Loader (shown) for stockpiling or loading trucks. Also available on skids as stationary plants. Other units: concrete; tilt, non-tilt plaster-mortar mixers; and Moto-Bug® (power wheelbarrow).

KWIK-MIX • Milwaukee, Wis.
(Koehring Subsidiary)

Versatile batch or transfer plant

As batch plant, Johnson Elevating Charger has a size 14 1000-lb. cement weigh batcher, hung under a 33-bbl. overhead storage hopper . . . or, to charge dual-batch trucks, two 1000-lb. weigh batchers can be used. It's quickly changed to transfer plant by removing batchers and cone, and bolting a 50-bbl. extension section to upper hopper. Easily moved and erected by dump truck, no crane needed. See your Johnson distributor.

C. S. JOHNSON • Champaign, Ill.
(Koehring Subsidiary)

Koehring ½-yd. hoe digs 17¾ feet deep

As a heavy-duty hoe, Koehring ½-yd. 205 digs 17¾ ft. below crawlers. 32-in. wide dipper is close-coupled . . . pulls tight up to the boom, avoids spillage. Long reach puts dirt far beyond edge of cut, or gives 10 ft.-4 inch clearance height to load into trucks. Converts to shovel, dragline, clamshell, or 10-ton crane on crawlers. Also available on rubber. Other excavators up to 2½ yards . . . and lift cranes up to 79½ tons.

KOEHRING Company
Milwaukee 16, Wis.

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Why are there so many prominent users of FOAMGLAS? Why are so many using it again and again? Because they know it is the only insulation with a sealed glass cell structure that stays dry, assuring constant insulating efficiency. They know that only FOAMGLAS can perform so well because no other insulation is so waterproof, fireproof and strong.

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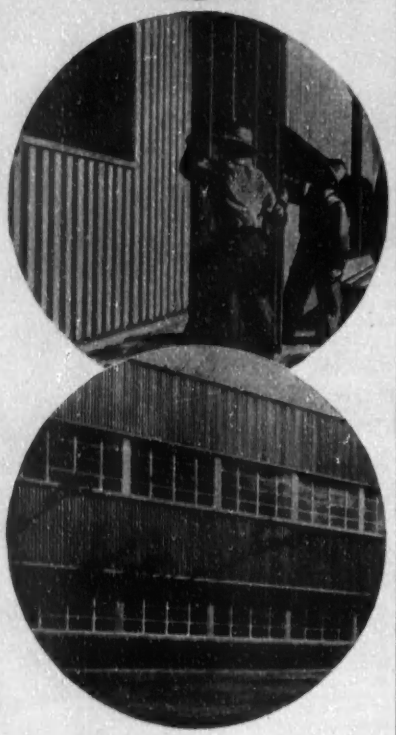

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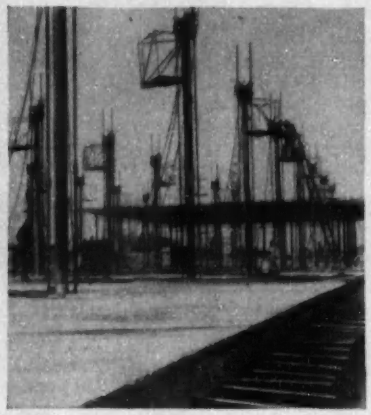


Heaviest Lift-slab to Date

SIR: I would like to supplement the data in the article in ENR October 14, p. 26, titled "Lift Slabs Get Bigger and Bigger". Actually, the biggest lift-slab was erected in San Antonio, Texas, in February, 1952, by Lift Slab, Inc. This slab was erected as part of a warehouse-office building for the Handy-Andy Grocery Co.

The slab, lifted on 36 columns, measured 80 x 195 ft, with a total of 15,600 sq ft. Its weight was slightly over 700 tons. We are quite sure that this is still the largest lift slab ever erected.

In the October 7th issue, on p. 211, is the statement that the dormitory building at Clemson College is the largest lift-slab job undertaken to date (513,000 sq ft). At the present time Lift Slab, Inc. and Southern Lift Slab, Inc. are about 80% complete on a coventure job at Louisiana State Penitentiary, Angola, La., which has already produced 930,000 sq ft of lift-slab. This we think to be the largest job undertaken to date.

JOHN B. PORTER
President
Lift Slab, Inc.
San Antonio, Texas

Wrong Firm Named

SIR: In the October 28th issue of the Engineering News-Record, we note in the "Jobs in the News" column, you report that the Oklahoma Gas & Electric Company will construct a steam-generating station near Muskogee, Oklahoma, with Pioneer Service and Engineering Company acting as Consulting Engineers.

Your reference to Pioneer Service and Engineering Company is incorrect. The firm of Sargent & Lundy has been retained by Oklahoma Gas & Electric Company to serve as Consulting Engineers for this addition to their Riverbank Generating Station.

H. J. SLAGTER
Sargent & Lundy
Chicago

Engineering Bidding

SIR: We shall appreciate your publishing, for the information of the engineering profession and your other readers, the following "Interpretation of Principles of the American Institute of Consulting Engineers," which was adopted by the Council of the Institute at its meeting on October 6, 1954:

"The procurement of professional engineering services through competitive bidding on a price basis is a repudiation of the status of engineering as a profession, and the American Institute of Consulting Engineers hereby places itself on record as unalterably opposed to such practice.

"Competitive bidding for engineering services is not in the public interest since it may lead to the employment of the engineer least qualified for the particular work under consideration instead of the best qualified, which should be the objective. The public inevitably suffers from the selection of an unqualified engineer through engineering design which results in uneconomical construction or an unsafe structure.

"The Institute subscribes to the procedure of procuring professional engineering services through negotiation between the principal and the engineer in such a manner that the interests of both parties and the interests of the public, where the public is involved, shall be protected."

T. T. MCCROSKY, Secretary
American Institute of Consulting Engineers
New York

CALENDAR

Building Research Institute, research conference on modular measure, National Academy of Sciences, Washington, D. C., Dec. 9.

American Road Builders Association, convention, Roosevelt Hotel, New Orleans, Jan. 10-13.

National Association of Home Builders, convention, Chicago, Jan. 16-20.

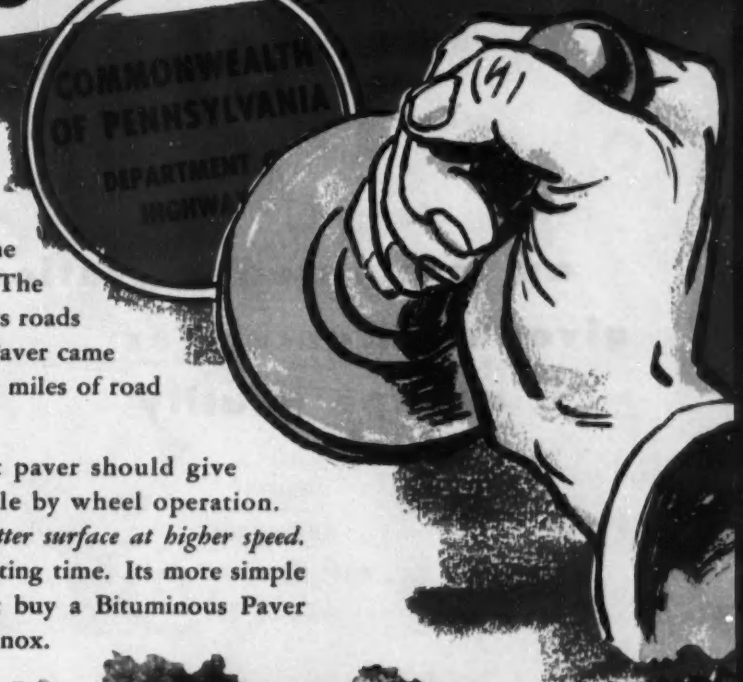
Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Jan. 23-27.

Mason Contractors Association of America, annual convention, Jefferson Hotel, St. Louis, Jan. 30-Feb. 2.

BLAW-KNOX

Bituminous Paver

APPROVED



The approval of the Blaw-Knox Bituminous Paver by the Highway Department of the Commonwealth of Pennsylvania should have real significance to contractors considering the purchase of new asphalt finishing equipment. The State of Pennsylvania is particular about how its roads are laid and the approval of the Blaw-Knox Paver came only after the laying and examination of many miles of road in the Pittsburgh area.

Contractors who plan to buy a new asphalt paver should give serious thought to the savings made possible by wheel operation. The Blaw-Knox Bituminous Paver gives *a better surface at higher speed.* Its mobility cuts relocation time and truck waiting time. Its more simple design *materially* reduces upkeep cost. Don't buy a Bituminous Paver until you have the whole story on the Blaw-Knox.

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Bucket-rocking action for faster loading

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Torque converter for smooth flow of power

LE ROI-TRANSO TLF-150 Front-end Loader

YES, sir, a 1½-yard Le Roi-Transo TLF-150 lets you move more load — faster — at lower cost — without tire spin or undue engine strain — in sand, mud, snow, or rocky terrain. It's engineered that way.

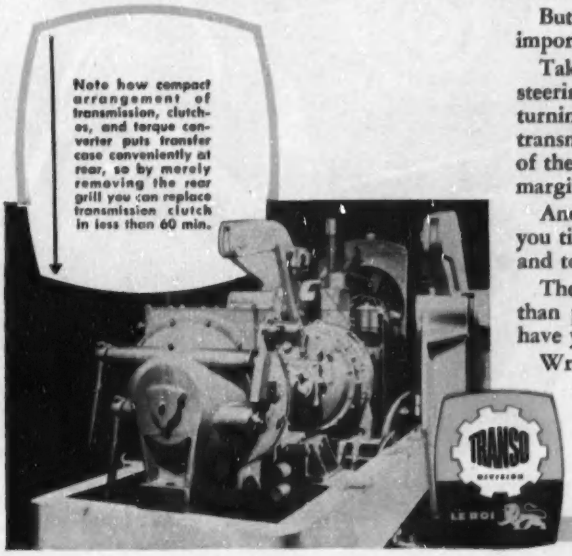
But that's only part of the Le Roi-Transo story. There are other important advantages.

Take maneuverability, for example. The TLF-150 has power steering, short (84") wheelbase, short over-all length, and a small turning radius — so it's easy to handle. Planetary-type, reversing transmission cuts reversing time 85%. The low carrying position of the bucket gives you especially good vision and provides an extra margin of safety.

And when it comes to maintenance, the TLF-150 is built to save you time and money. Engine, transmission, clutches, axle assembly, and torque converter are grouped compactly and are easy to get at.

There are even more reasons why a Le Roi-Transo TLF-150 more than pays its way on material-handling jobs. See for yourself — have your Le Roi-Transo distributor arrange a demonstration.

Write for latest bulletin.


Note how compact arrangement of transmission, clutches, and torque converter puts transfer case conveniently at rear, so by merely removing the rear grill you can replace transmission clutch in less than 60 min.
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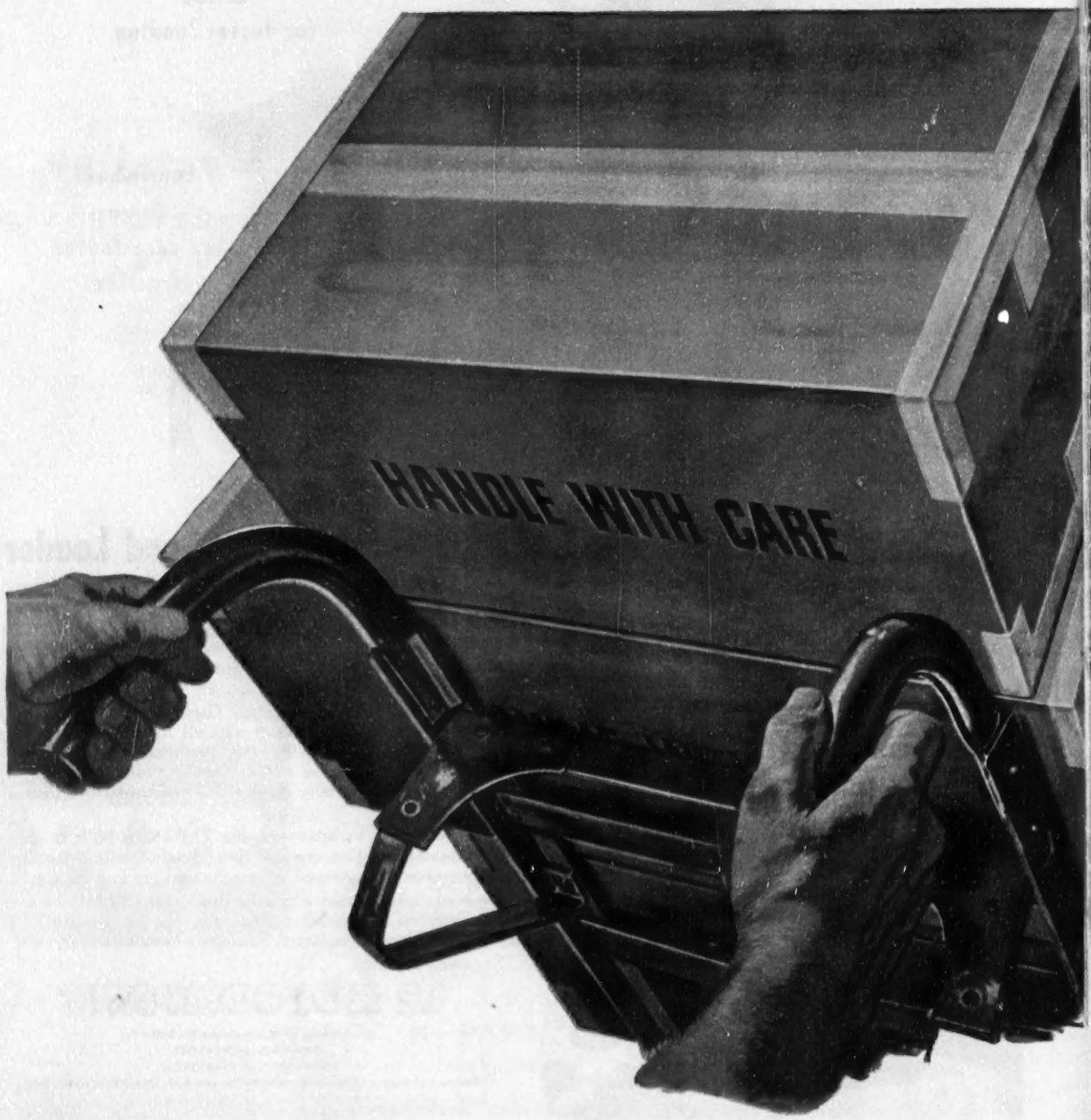


For Light Freight

ELEVATORS ARE SELF-SUPPORTING UNITS

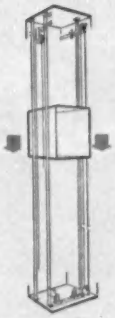
You can have electric power freight handling at relatively low cost.

Otis Self-Supporting Elevators have been designed specifically for hoisting light freight between 2 or 3 floors. They are made in 3 standard sizes with lifting capacities of 1,500, 2,000 or 2,500 lbs. They travel at 25 feet a minute and are suitable for all rises up to 35′-0″.

Otis light duty elevators are self-supporting units. They keep all heavy loads off the building structure. They can be installed in any store, laundry, hospital, storage building, or manufacturing plant quickly and inexpensively.

NO COSTLY ... building reinforcing

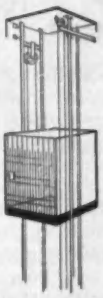
The guide rail structure carries the hoist ropes and sheaves, the elevator car, and the full freight load. Its vertical T-rails and cross channels transfer heavy vertical loads to the bottom of the pit.



The guide rail structure is attached to the building at each floor and at the top of the hoistway to steady the structure and take light horizontal thrusts.

NO COSTLY ... penthouse

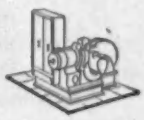
The supporting structure stops at the underside of the roof. Horizontally folding car gates reduce the hoistway headroom requirements above the top landing to 10′-6″. Where extra headroom permits, standard vertical steel gates may be used to leave the full door width clear for loading.



This headroom permits the use of steel vertical bi-parting hoistway doors. They are constructed for long life under the rough handling encountered in freight service.

NO COSTLY ... overhead supports

The hoisting machine is mounted as a complete unit on a concrete foundation at the bottom floor. It is powered by an Otis-built electric motor and operated by an Otis-built controller. The overhead hoist rope sheave is supported by the elevator structure.



* * *

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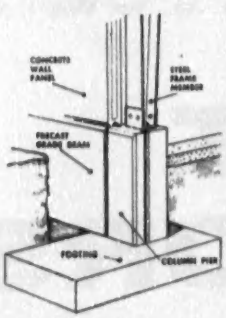
Go inside . . . note the large area of clear floor space, unobstructed by hindering columns; the unlimited headroom made possible by the use of welded rigid-frame construction. Metal door and window frames, cast integrally into panels are placed where you want them . . . another example of the flexibility and versatility of Marietta "Panel-Bilt" Buildings. And you find that with Marietta's unique method of precasting wall panels and grade beams, only footers and floor slabs need be poured on the site; a feature that cuts erection time to short days!



Predesigned throughout of standardized components by Marietta engineers to provide a durable, handsome structure capable of being erected in the shortest possible time, Panel-Bilts may be used for practically any industrial application. Finished or partitioned, they are ideal for offices or commercial use, maintaining a high degree of comfort in all weather due to the superior insulating value of Marietta wall panels.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

SLIDE IN STRIDE—Panama Canal officials aren't worrying visibly over that slide two weeks ago of some 5,000 cu ft of rock at Contractors' Hill. Ships have been able to move without interruption through a full-depth channel 180 ft wide that remained open at the slide site.

What happened: A naturally fractured slab of rock broke off from the canal bank Nov. 4, as a result of what engineers said was weathering of the Pedro Miguel agglomerate. The breakoff caused the rock fall from the north end of Contractors' Hill, where work is under way to forestall possibly more serious rock slides.

Meanwhile, a dipper dredge was put to work Nov. 5 to remove the debris.

HIGHWAY SCHOLARSHIP—Moving to provide answers to their own very real fear that any expanded highway building program will snag on a shortage of trained engineering personnel, Illinois AGC chapter members took a positive step:

They approved a $4,000, four-year scholarship, to be awarded each year to students entering the University of Illinois, starting with the 1955-56 school year.

High school seniors in the state can qualify through essays on "highway enigneering as a career," plus scholastic and other qualifications.

MORE 'PIKE?—With his state's new turnpike only newly in operation, Gov. William C. Marland of West Virginia has announced plans for a study of possible future spurs and connections for the road.

The study, Marland said, will cover North Carolina, Virginia and West Virginia, with an eye toward eventual linking up with the long-planned Great Lakes-Miami turnpike scheme.

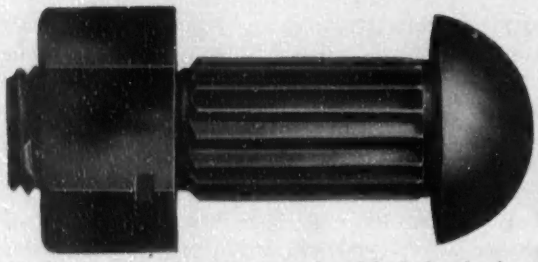
NO LICENSE, NO PRACTICE—A county chancery court has issued a temporary injunction against a local man to stop him from practicing architecture in Tennessee.

According to B. B. Fullett, attorney for the State Regulatory Board, C. C. Drinnon of Chattanooga operates a drafting service but drew working plans for a church. Drinnon, said the attorney, has never obtained an architect's license.

PORT PLANS—Anxious to capitalize on the St. Lawrence Seaway, the small New York State city of Oswego has set up a $20,000 budget and is looking for a port director.

Objective: make Oswego a major port for the Great Lakes area. Boosters figure the city's position in the central part of the state makes it a natural to serve industrial areas as a port.

ON THE WORLD'S TALLEST TOWER



All field connections were made with Galvanized "Structural Rib Bolts" and Galvanized ANCO Lock Nuts having U. S. Standard threads.

WE are proud that the designers of the tallest structure in the world used our products in its fabrication. The fact that this gigantic structure must stand up under tremendous stresses and strains only serves to illustrate the confidence of its designers in the unusual strength and dependability of our product.

Tests show a 5/8" dia. ANCO bolt to be stronger than a 3/4" dia. rivet while shear and bearing values are equal to hot driven rivets.

In addition, structural rib bolts with ANCO lock nuts greatly reduce time and labor costs because they require less skill to install. In fact, they are so easy to install that one man with a maul and wrench can replace a forge and riveting team . . and do a better job, too! Threads cannot be stripped and the locked nut cannot slip. Vibration tends only to tighten an ANCO nut, but if desired the nut can be removed easily with any ordinary wrench

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Write today for samples, complete information and prices.

- **KWTV Tower stands 1572' above the ground, 100' higher than the Empire State Bldg.**
- **Triangular in cross section, it is 12' wide on each side up to the 1420' level from which it tapers to the base of the TV antenna.**
- **Total tower weight: 1,323,392 pounds which includes approximately fifty tons of Galvanized ANCO Structural Rib Bolts and Lock Nuts.**
- **Designed and fabricated by IDECO DIVISION, Dresser-Stacey Company. Erected by Mixell Construction Co. of Ganado, Texas.**

AUTOMATIC NUT COMPANY, INC.

LEBANON - - - PENNSYLVANIA

WASHINGTON OBSERVER

The whole Eisenhower public works program got a shot in the arm from the elections. Officials here read the results of the bond issues voted around the country as endorsement of their theory on highways and other construction. A wide range of projects—hospitals, public housing, streets, water and sewage works, schools—were okayed at the polls, totaling more than $1 billion (ENR Nov. 11, p. 22.)

Administration underscores great need for such construction—but also wants as much done by non-federal agencies as is possible. They know this will work as long as voters approve local bond issues—which they certainly did Election Day.

Bond issue results also back those who say voters will commit themselves to pay over a period of years for public works they need now—a key argument being used to put over financing of highways through bond issues.

•

The vast interest in offshore oil leases boosts demand for "Texas towers." The government's first offering of drilling rights to oil under the continental shelf off Texas and Louisiana brought more bids and higher bids than was expected, and confirmed those who predicted that a real oil rush would be on when leases were available.

Now there's a need for more offshore platforms that can be used for drilling. And the demand arises at a time when the government is launching its offshore radar installation program, which will require several units, presumably similar in principle to the oil-drilling platforms.

•

Keep alert for the upcoming government policy report on transportation. The Cabinet committee is due to report, Dec. 1. Though the burden of the report will be about the dispute among air, truck and rail travel and regulations, it will go to the nub of financing new construction of airports and highways—user charges such as terminal rentals, ton-mile taxes, etc. The findings will affect the amount of money the federal government and localities will have for building.

•

Organized labor is concentrating on three federal posts to get back some influence in the Administration. You'll see the pulling and tugging next year when the Democratic Senate takes up approval of Eisenhower's choices for the jobs.

Union leaders and Democrats are lining up to bargain with Eisenhower, with the objective of getting one key spot: that of NLRB general counsel, who is more powerful than any single member (see page 24).

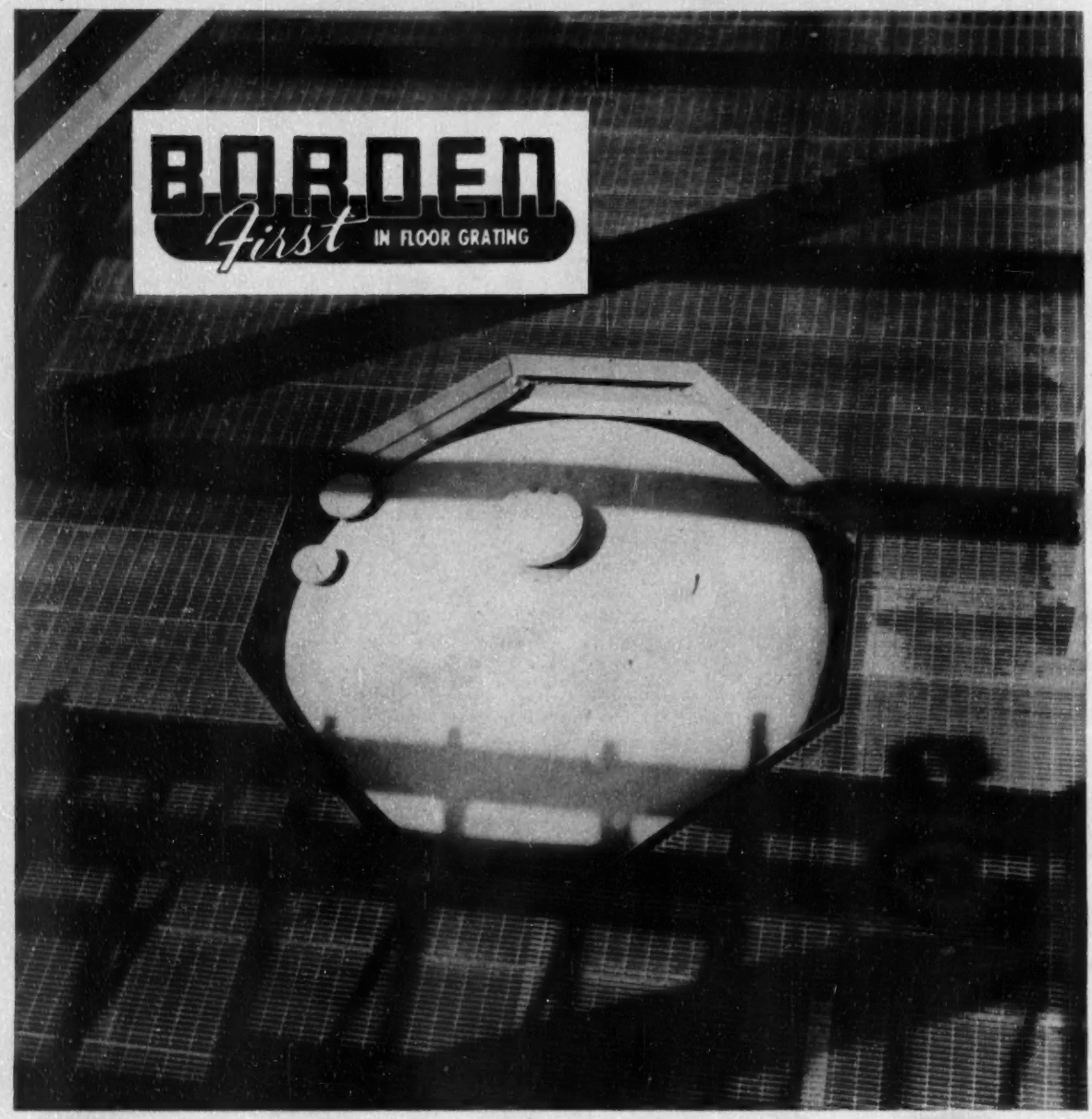
Whitley McCoy of the Conciliation and Mediation Service will resign around Dec. 1. Labor Secretary Mitchell wants his own man, Joseph Finnegan of New York, named.

NLRB member Albert Beeson, confirmed early this year after a fight, won't be reappointed to the NLRB—by his own choice.

General Counsel George Bott is supposed to be replaced by Theophil Kammholz, Chicago attorney who was nominated by Eisenhower at the present special session of the Senate. But Democrats are balking at confirmation; they want to keep Bott on, but are hesitating to make a political fight in the new Congress where labor's strength is uncertain.

•

"The nation looks at its resources," a book based on investigations of Resources for the Future, Inc., is available, at $5. Write Mid-Century Conference Report Office, 1606 New Hampshire Ave., N. W., Washington 9, D. C. It excerpts expert testimony on water resource problems, energy resource problems, U. S. concern with world resources, etc.



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Francis V. Du Pont

Public Roads Commissioner Du Pont moves up into the key job for the highway building program, and . . .

His deputy, Curtiss, takes over in BPR, Washington gets set to build . . .

C. D. Curtiss

Highways on a Grand Scale

President Eisenhower's "grand plan" to double the rate of highway construction to a record $100 billion in the next 10 years gained momentum last week.

In Seattle, Francis V. Du Pont, Commissioner of the Bureau of Public Roads, announced that he will resign that post in order to devote full time to developing the President's highway program.

The appointment—announced while Du Pont was in Seattle attending the annual meeting of the American Association of State Highway Officials (page 23)—makes Du Pont a special assistant to Secretary of Commerce Sinclair Weeks and puts him in the key position for the Eisenhower highway program.

Du Pont will have responsibility for pulling together the recommendations of the Governors' Highway Committee, the President's special highway committee under Gen. Lucius Clay, and other groups. He will play an important part in preparation of the recommendations the Administration sends to Congress next year. And he will have another important responsibility—selling the program to Congress.

Charles Dwight Curtiss, now Deputy Commissioner of BPR, will take over as acting Commissioner. Curtiss soon will be eligible for retirement, so the way will be clear to re-appoint Du Pont to the top BPR post after the highway program clears the Congressional hurdle.

Thinking about the President's highway proposals also moved ahead last week on two other fronts.

In Seattle, the AASHO meeting endorsed federal government financing for the $25-billion construction job on the 40,000-mi interstate system, at the same time continuing regular federal aid for the rest of the roads in the federal-aid network.

In Chicago, Gen. Clay told the American Petroleum Institute that his group is "seriously considering" a plan to have the federal government pay the entire bill for building the interstate roads—on a modestly expanded basis that will run the cost up to something more than $25 billion.

Gen. Clay made no reservations as to full federal assumption of the interstate cost. He indicated that the President's highway committee is thinking of 100% federal payment for interstate improvements—to be financed through sale of 25-year bonds to private investors by a new government financing agency.

Such bonds, Clay said, might be paid off from funds that the agency could accumulate as a result of annual appropriations by Congress from federal taxes on gasoline and oil. These taxes could be counted on to bring in steadily increasing revenues that would cover all bond financing costs for interestate construction and, at the same time, pay for federal contributions to the rest of the federal-aid highway system.

Continuation of federal aid for the remainder of the federal-aid system was urged by the state highway officials. Making the 40,000-mi interstate system a full federal responsibility would still leave more than 630,000 mi. at the present count, in other federal-aid systems—primary, secondary and urban.

The Clay committee's plan would continue regular federal grants to the states for these roads, on the current 50-50 matching basis. And, in the future, the yearly amount apportioned to the states could be expected to increase as federal revenues from existing gas and oil taxes go up.

• **Connections raise costs**—In his Chicago talk, Clay outlined a modest enlargement of the interstate construction program—to build radial and circumferential links connecting interstate routes within metropolitan areas. Mention of this additional federal construction befuddled some reporters at the meeting and resulted in a few newspaper stories that mistakenly labeled the entire interstate construction plan an "addition" to the President's program.

Clay did not say that, and most of the news services caught his meaning

(Continued on page 22)

. . . Highway program gains momentum

more accurately. He cited the cost of building up the authorized 40,000-mi interstate system to a design capacity sufficient to carry 1974 traffic at $23 billion plus. To this Clay added the proposal that the federal government build supplemental connecting routes in crowded urban areas at a cost of maybe $3 billion, increasing the total to $26 billion.

The importance of these supplemental links has shown up in the Clay committee's study of highway needs. The committee and its technical consultants have known from the beginning that the most urgent needs on the interstate system lie in the metropilitan areas. The significance of radial and circumferential feeder routes in these areas has become more firmly established as the study progressed.

The committee has sent experts into some 25 urban areas to determine the cost of these essential traffic distribution branches. These surveys may produce a closer estimate of the additional cost of supplemental interstate connections than the $3-billion figure Clay talked about. But the committee may end up with nothing better than a $3-billion to $4-billion estimate in the report it will make to the President Dec. 1.

Emphasis on the metropolitan problem in the committee's thinking calls also for designation of the interstate routes through these areas. So far, the selection of routes to be followed by interestate highways through cities has been pretty much held in abeyance.

Rural portions of the interstate system have been generally designated, but there remain about 2,200 mi of the 40,000-mi network still to be definitely located through urban areas. Many difficulties, including high cost, have delayed final decisions on the location of the urban sections of these main trunk highways.

Clay had nothing to say at Chicago about another $25-billion segment of the President's grand plan. This portion, which Eisenhower proposed be built at equal speed, would require borrowing by states and local governments against future highway user tax revenues. The borrowed funds would be used for construction of streets and roads outside the federal-aid systems.

The Clay committee so far has no fixed ideas as to how this money should be raised—or how far the federal financing agency should go in assisting state and local authorities to sell highway bonds at low interest rates, without increasing the bonded debt of the state and local governments.

This $25 billion for accelerated 10-year construction of state and local highways is still an integral part of the President's plan.

It will be threshed out when the Clay committee starts final work on Part 2 of its report to Eisenhower.

The committee at present is completing Part 1—on highway needs. Next week the group will get down to the more difficult business of whipping its financing recommendations into final form.

• **Federal agency**—A federal financing institution to raise money from private sources—outside the federal budget and the federal debt limit—almost certainly will be recommended. This agency or corporation could sell bonds to meet construction costs of the interstate system, now roughly estimated at $26 billion. Whether it would also assist state and local highway authorities by buying their debentures, or by guaranteeing the state and local bonds, remains to be determined.

Eisenhower undoubtedly will spell out the makeup of this agency in the highway message that he hopes to send to Congress in January. Administration thinking now leans toward a governing board made up of the three Secretaries of Commerce, Defense and Treasury, plus the Commissioner of Public Roads.

Highway construction needs now being considered by the Clay committee were compiled this year by the states at the request of the Public Roads Commissioner. Congress in the 1954 Highway Act directed the Commissioner to make such a study and to report his findings by Feb. 1 next year. Instructions to the states said that estimates of needs for the interstate system should be based on 1974 traffic; for other roads and streets, on 1964 traffic.

Construction needs developed by this survey make up the $101-billion total laid before the Clay committee (ENR Oct. 14, p. 21). The total is all-inclusive except, perhaps, for a moderate increase in cost of interstate connections with urban areas.

Reported costs to meet interstate needs are $13 billion for rural sections of the system and almost $11 billion for the urban sections, a total of nearly $24 billion.

These needs apply to 85% of the interstate system. The remaining 15% of the interstate mileage is considered adequate in all essentials for 1974 traffic. A good part—but not all—of the 85% that needs rebuilding also would have to be relocated. Relocation would be necessary in some places to avoid prohibitive costs in acquiring wider right-of-way, and in other places to build controlled-access highways or to correct excessive grades and curves.

Other federal-aid primary system routes, according to the survey, need improvements costing nearly $20 billion for rural sections and slightly more than $10 billion for urban sections. Needs on federal-aid secondary roads amount to nearly $15 billion.

In all, there are about 3.3 million mi of streets and roads in the United States. For highways outside the federal-aid systems, the construction needs reported by the states (to take care of 1964 traffic) amount to slightly more than $17 billion for rural roads and a little more than $15.5 billion for city streets.

Altogether, the highway construction needs, 1955 to 1964, add up to $101.4 billion. Normal highway construction in the 10-year period could be expected to meet nearly $47 billion of the total. That leaves a deficit of more than $54 billion.

Eisenhower will ask Congress to approve plans for catching up with the deficit in 10 years, upgrading the nation's highways to the level of traffic demands by 1964.

41 Stories in Steel

Steel framing for the $37-million Prudential Insurance Co. building in Chicago's Loop area was topped out Nov. 16. The 41-story building is the first skyscraper to go up in Chicago in 20 years (ENR Aug. 6, 1953, p. 26). The air-conditioned structure is being faced with limestone and aluminum. It is scheduled for completion late next year. U. S. Steel's American Bridge Division fabricated and erected the steel structure. George A. Fuller Co. is general contractor, and Naess & Murphy, Chicago, is architect-engineer.

AASHO Endorses President's Highway Plan

But association takes stand that design and construction under $50-billion program should remain state functions

The nation's state highway officials warmly endorsed President Eisenhower's $50-billion highway program last week at the 40th annual meeting of the American Association of State Highway Officials in Seattle.

AASHO adopted a policy statement extending to the President the association's "sincere gratitude for his progressive proposal." But it cautioned that the states should continue to be responsible for design and construction under adequate standards in any expanded roadbuilding program.

The statement urged completion of the program within 10 years. It noted that the interstate highway system would be emphasized in the new program, and said present federal aid for other highways should be continued.

The problem of how to finance the Eisenhower program was the subject of much informal discussion and was referred to in addresses by two Republican congressmen, Rep. George A. Dondero of Michigan and J. Harry McGregor of Ohio.

Rep. McGregor warned that any new federal financing would have to come from some form of highway user tax and not from general revenues. He said neither Congress nor the public would look favorably on increasing taxes to pay for more highways.

• **State officials report**—W. A. Bugge, Washington State Director of Highways, told the meeting Washington may build $344 million of toll facilities over the next five years.

Bugge said highway user fees and revenue bonds had not provided enough money to build the highways needed, so the state would use the toll method of financing wherever possible. Feasibility studies now are being made for a 65-mi highway from Tacoma through Seattle to Everett. Estimated cost is $158 million.

John J. Heier, deputy director of the Ohio State Highway Department, said even the $500-million Ohio bond program, voted a year ago, will not meet the state's highway construction needs for long. These bonds are to be all sold by March 1962. Not more than $125 million can be sold in any one year; they must be redeemed by 1972.

Heier said Ohio's highway construction program probably would be severely restricted—even with these funds—until the bonds are redeemed.

• **Engineer shortage**—ASSHO's retiring president A. E. Johnson, Arkansas State Highway Engineer, urged members to encourage young men to enter the highway field. He said existing and future programs would demand more technical and engineering personnel.

On the recommendation of its committee on administrative practices, the AASHO executive committee adopted a new minimum salary schedule. It ranges from $4,000 to $4,800 annually for new college graduates to $12,000 for assistant state highway engineers and chief division heads to a top of $17,000 for state highway engineers.

Some speakers warned that even higher salaries may not be enough. They pointed out that some states already are paying overtime rates and still are falling behind on necessary work. A. D. Sappington, Missouri Highway Commissioner, said the bottleneck in the highway program is the shortage of engineers.

The AASHO meeting passed resolutions to support legislation that would remove inequities resulting from:

• Navigational clearance requirements for highway bridges.

• Highway relocations and adjustments made necessary to accommodate federal water resources projects.

• Reservation of power sites which deny areas to highway development.

The new AASHO president is George T. McCoy, California State Highway Engineer (ENR Nov. 11, p. 53). Other new officers are: first vice-president, Frank D. Merrill, New Hampshire Highway Commissioner; regional vice-presidents, John A. Volpe, Massachusetts Commissioner of Public Works; C. R. McMillan, South Carolina Highway Commissioner; R. R. Bartelsmeyer, Illinois Highway Engineer; and W. A. Bugge, Washington Director of Highways.

Members of the executive committee are: Mark U. Watrous, Colorado Highway Engineer, and G. S. Covert, Louisiana Director of Highways. The treasurer is E. W. Kilpatrick, New Jersey State Highway engineer.

The AASHO meeting next year will be held in New Orleans, La., during the week of Dec. 4.

RESIGNED—Hal Hale Leaves AASHO for highway position with the Association of American Railroads.

POSSIBLE SUCCESSOR—A. E. Johnson, Arkansas State Highway Engineer, may be new AASHO executive secretary.

AASHO's Executive Secretary Resigns

Announcement was made at the American Association of State Highway Officials meeting in Seattle that Hal H. Hale, executive secretary since Jan. 1, 1944, had tendered his resignation to become assistant to the vice president for highway transportation of the Association of American Railroads.

Before joining the AASHO, he had been city engineer of Knoxville, Tenn., from 1933 to 1938, and had worked in the city engineer's office since 1926. He was graduated in civil engineering from the University of Tennessee in 1921. Hale also served as office engineer, Portland Cement Assn., in Atlanta from 1938 to 1941. From 1941 to 1944 he was Washington representative of the American Society of Civil Engineers.

A successor to Mr. Hale was not announced officially, but there were indications that the executive committee had settled on A. E. Johnson, who has just finished a term as the association's president.

Labor May Fight NLRB Appointment

Union leaders don't like the President's choice of Kammholz as NLRB general counsel, but they hesitate to oppose it

Labor leaders are debating whether to risk a first test of the influence they will have with the next Congress in a fight against confirmation of President Eisenhower's choice for one of the most sensitive federal labor jobs --general counsel of the National Labor Relations Board.

The President named Theophil Kammholz, a 45-year-old Chicago attorney, for a four-year term at the post. Labor's objection to Kammholz isn't personal. He's well liked by union officials who came to know him when he was Chicago regional attorney for the War Labor Board in 1953.

But labor does object to his background as an attorney for industry with the Chicago firm of Vedder, Price, Kaufman and Kammholz.

The general counsel's job is probably the key position at the NLRB. He has the power to decide whether to prosecute unfair labor practice charges without consulting board members.

Labor-management rules can't be spelled out in detail. All that the Taft-Hartley Act contains are basic rules that must be interpreted for a specific situation. This is where the frequent conflict arises between Democratic and Republican solutions to the issues. Eisenhower-appointed board members are at odds more often than not with Democratic holdover board members on key decisions.

Union leaders are afraid someone they consider on the management side might act as "prosecutor" on board cases. Industry officials, on the other hand, feel that the NLRB under Democratic administrations was acting in favor of labor and see the Kammholz appointment as part of a needed change in direction, along with the revised rulings currently being handed down by the GOP majority members of the board.

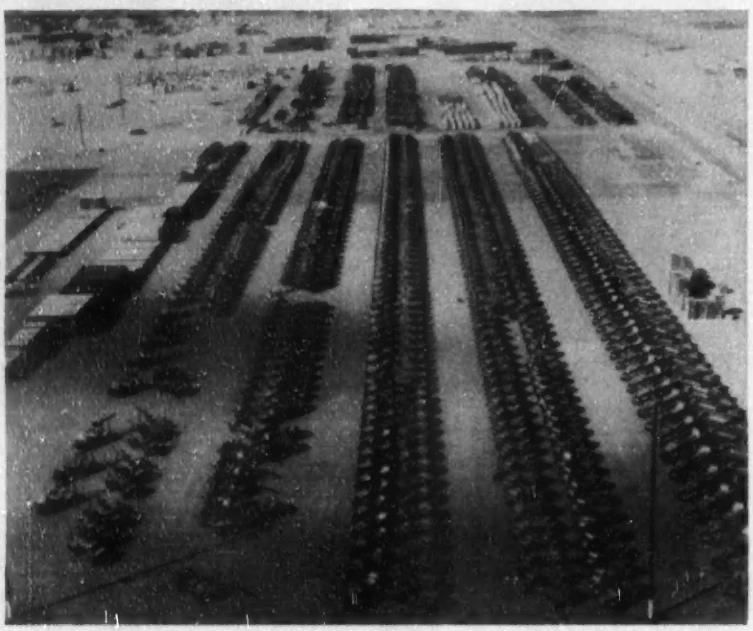
But labor leaders are cautious about taking a stand in Congress against Kammholz' nomination. They need the backing of Democratic congressmen, and the question is still unsettled whether the unions can get such support in the new Congress.

President Eisenhower sent his general counsel's nomination to the interim session of the current Congress. It could be approved there, but more likely the Democrats will decide to sit on it until the new session convenes with their party in control. If this happens, Kammholz will take over on a temporary basis in December, succeeding George Bott, a Truman-appointee whose term runs out next month.

At the next session of Congress the Administration plans to propose some minor amendments to Taft-Hartley, the minimum wage law and the eight-hour day law. This latter proposal is being pushed by Labor Secretary James Mitchell for the AFL building trades, who complain that some contractors are taking advantage of a loophole in the law to work employes on federal projects 56 hr a week without overtime. The plan is to change the regulation to require overtime after 40 hr rather than after eight hours for each workday.

The White House labor "package," while falling short of what labor wants, will find tough sledding on Capitol Hill. There's a chance some of the proposals will go through, but any labor legislation under the new Congress is expected to be minor.

That's why labor is wary of making an issue over Kammholz. If the unions lose on this first issue, which is likely, they'll be in a more unfavorable position when other labor issues come up.



Navy Lines Up Equipment for Auction

Almost $9 million of construction and power equipment will go under the auctioneer's hammer at the U. S. Naval Construction Battalion Center in Port Hueneme, Calif., on Dec. 7 and 8. Most of the equipment is brand new. Among the items to be included in the sale are the following: almost 650 trucks of all types, 54 cranes, 35 crawler tractors, four complete rock-crushing plants and a number of swing cranes, compressors, pumps, generators and skid-mounted power units.

Army Engineers Open Bids For Big Garrison Dam Job

A $6,159,006 joint bid by Peter Kiewit Sons Company of Omaha and Morrison-Knudsen Company, Inc., of Boise, Idaho, was announced by Army Engineers as the apparent low for the Stage 2 spillway job at Garrison Dam near Riverdale, N. D.

The contract is the last major job for the Missouri River dam.

Other bidders included Guy Atkinson and United Construction Company, $8,643,619.40; Kaiser-Perini-Walsh Combine, $9,381,558; Garrison Spillway Constructors (Johnson, Drake and Piper, C. F. Lytle Co., Foley Bros., Inc., Donovan Construction Company and Winston Bros., Inc.), $8,493,701.50. Government estimate was $7,666,195.

The contract calls for 211,244 cu yd of concrete, construction of 15 relief wells each 67 ft deep. Retaining walls will measure 25 ft high on the 20% slope of the spillway's stilling basin and 84 ft high in the flat portion. The concrete slab will measure 800 by 1,213 ft.

Work on the contract will not start until next spring. Completion date is Dec. 31, 1957.

River Compact

7 Columbia Basin States agree on unique code for use of water resources

A seven-state compact, designed to insure a more orderly development and equitable division of the water and power resources of the Columbia River Basin, was put in final shape last week for submission to Congress and state legislatures.

The pact is the product of negotiations among representatives of Washington, Oregon, Idaho, Montana, Wyoming, Utah and Nevada, who comprise the Columbia Interstate Compact Commission. The group was chairmanned by Frank A. Banks, retired Bureau of Reclamation official, who was chief engineer for construction of Grand Coulee Dam.

Several provisions distinguish the Columbia Basin Compact from the usual interstate agreement on water rights. Most significant of these are:

- No specific allocation of water among the seven states is provided.
- The water requirements of the upstream states for agriculture and municipal use are given specific priority over the power demands of the two downstream industrial areas of Washington and Oregon.
- Further, the upstream states are assured a share of the power output of future hydro developments. The compact commission is given the duty of advising the Federal Power Commission and Congress on the minimum amount of power that should be earmarked for the upstream area (five inland states plus the parts of Oregon and Washington east of the summit of the Cascade Mountains).

• **Voting arrangement**—The commission set up by the compact will consist of two members each from Washington, Oregon, Idaho and Montana; one each from Wyoming, Utah, and Nevada; and a federal government representative, who will serve as chairman. Decisions will require an eight-vote majority.

Idea of a Columbia River authority was talked about when the compact was proposed, but was discarded early in the negotiating stage. It was decided to forego regulatory functions and make the commission a planning, coordinating and advisory body.

Aside from exercising its regular functions, it is felt that the commission also will play a significant role in focussing the attention of Congress on western aspirations for water and power projects.

The compact will become effective as soon as the state legislatures of Washington, Oregon, Idaho and Montana—the key states involved—and the U. S. Congress vote approval. Necessary legislative action is looked for in the coming year.

The executive committee of the temporary commission that drafted the pact is scheduled to confer with officials of federal agencies in Washington early next month in order to insure that all possible jurisdictional conflicts have been avoided before the pact is submitted to the legislatures and Congress.

W. Va. Turnpike

88-mile grand opening spurs extension plans

Last week the $133-million West Virginia Turnpike was opened for its entire length—88 mi through rugged terrain between Charleston, the northern terminus, and Princeton, about 10 mi shy of the Virginia-West Virginia line on the south.

The new turnpike reduces driving time by a matter of one and one-half hours for buses and trucks and shortens the total distance by some 22 mi. (For construction background, see ENR March 25, 1954, p. 30.)

But toll charges won't be cheap when compared to those on other state turnpikes. To travel the entire distance by passenger car, the toll will be $1.65 or about 2 cents per mile. Two-axle, dual-tire trucks will have to pay $3.00. Buses and 3-4-5-6 axle semi-tractor-trailer rig will be charged $6.50.

With the main hurdle over, turnpike officials already are discussing tentative plans for extending the present highway. Under an agreement between Virginia, North Carolina and West Virginia, traffic consultants have been hired to find out just where a turnpike south from West Virginia's state line should lead to provide the most customers. Findings also will determine at what point on the Virginia state line the present toll road will be extended.

The knottiest problem facing officials is the direction the turnpike's extension will take from its present northern terminus. They'll have to decide whether (1) to strike directly west some 50 mi to the Ohio River and let Ohio have the headache of handling the traffic flowing to and away from its terminus over free roads, or (2) to extend the turnpike north some 200 mi and end up in the same general neighborhood with the Pennsylvania-Ohio Turnpike.

No matter what the direction, officials are firm on one decision—any extensions will be of the four-lane type with a divider line or strip.

Reclamation Talks

NRA annual meeting told unity of western states essential to reclamation

Federal Commissioner of Reclamation Wilbur A. Dexheimer called for unity among the western states to achieve an "orderly rate of water resources conservation and development."

Dexheimer told a meeting of the National Reclamation Assn. in Portland, Ore., last week that cleavages within the 17 western states were responsible for the failure of Congress this year to authorize projects that had Administration backing.

"The Congress," he said, "has always shown a disposition to go along with the western states on any development which we all can support." Dexheimer said he was convinced, too, that President Eisenhower understood the importance of reclamation development.

Although he did not name any projects, it was generally understood that he was referring to the $1-billion Upper Colorado River project which was strongly opposed by California and failed to win approval in the last Congress.

William E. Welch, secretary-manager of the association, told the meeting an annual outlay of $250 million is vital to provide the continuous development necessary to meet the food needs of the nation in 1975. He said an additional 6,000,000 acres of irrigated land would have to be put in cultivation by that date.

The amount of annual expenditure on reclamation Welch called necessary compares with about $163 million appropriated for the current fiscal year and with more than $200 million in each of the five preceding years.

C. Petrus Peterson, who was reelected to a fourth term as President of the Association, announced to the meeting that the Association's directors had ordered an exhaustive study of the food surplus situation. The study would be aimed at providing an answer to the criticism that it is unnecessary to spend more money on reclamation when the nation already is producing more food than it can consume.

Interior Secretary Douglas McKay told the 500 delegates at the meeting that some coastal cities may in the future augment their water supplies with desalted ocean brine. He said an Interior research project in this field was in progress.

The meeting approved a total of 34 resolutions and agreed to hold its 1955 annual meeting in Lincoln, Neb.

Predict Rise in Construction Spending

Forecast by Commerce and Labor Departments indicates an increase of 7% next year to a total of $39.5 billion

Spending on new construction next year will rise to $39.5 billion, nearly 7% above the newly adjusted record total of $37 billion now estimated for this year. That is the outlook as forecast by the Commerce and Labor Departments.

All types of construction are expected to go up except industrial building (both public and private), farm construction, railroads, public housing, and federal civil works—listed as conservation and development in the accompanying table. But these declines (which represent a total decrease of near $1 billion below the current calendar year) are more than offset by big increases in private housing, highways and other types of both private and public work.

• **Private construction rises**—Private construction gives the biggest boost to the projected rise of $2.5 billion for new construction as a whole. Private spending will go up by $1.875 billion next year to a new record level of $27.4 billion, the government estimated.

At the same time, dollar expenditures next year on federal, state and local public works will increase by $625 million to a new peak of $12.1 billion, according to the opinion of Commerce-Labor economists and statisticians.

Biggest single increase in the entire list is projected for new private housing. Homebuilders are expected to start 1,300,000 new dwelling units in 1955, 100,000 more than are estimated for this year. This increased activity will call for a step-up of nearly $1.6 billion in construction spending for new homes, boosting the outlay to almost $13.5 billion next year.

Commercial building is expected to go up to a new peak of $2.3 billion in 1955. Also, religious construction and private school building, which set records in 1954, are estimated to rise slightly next year.

• **Industrial construction declines**—New private industrial construction will decline moderately for the third successive year, the forecast indicates. But the downtrend in industrial contract awards has been leveling off, and the 1955 decline will be less than 1954. Public industrial construction will go down as atomic energy plants approach completion.

State and local public works, which are hitting a new peak of $8 billion this year, are expected to top that record with a rise to a figure of $9 billion in 1955.

• **Optimistic on highways**—Highway construction is optimistically estimated to produce $4.2 billion of spending next year. But public school building has been conservatively figured to be at the rate of $2.4 billion for 1955.

Direct federal construction spending will decline less in 1955 than in 1954. Atomic energy construction is the main factor in the reduced direct expenditure by the federal government for its own works.

But money spent for flood control, reclamation and rivers and harbors also will drop slightly.

Military construction is expected to rise as the Defense Department speeds up its base building program.

Expenditures for New Construction in Continental U. S. Final Estimates for 1954 and Forecast for 1955

Type of construction	1954 (in millions)	1955 (in millions)	% change
TOTAL NEW CONSTRUCTION	$37,000	$39,500	+6.8
PRIVATE CONSTRUCTION	25,525	27,400	+7.3
Residential building (nonfarm)	13,305	15,000	+12.7
New dwelling units	11,890	13,475	+13.3
Additions and alterations	1,120	1,200	+7.1
Nonhousekeeping *	295	325	+10.2
Nonresidential building (nonfarm)	6,140	6,400	+4.2
Industrial	2,000	1,850	−7.5
Commercial	2,155	2,300	+6.7
Warehouses, office and loft buildings	955	1,000	+4.7
Stores, restaurants and garages	1,200	1,300	+8.3
Other nonresidential building	1,985	2,250	+13.4
Religious	585	675	+15.4
Educational	560	650	+16.1
Social and recreational	210	225	+7.1
Hospital and institutional	335	400	+19.4
Miscellaneous	295	300	+1.7
Farm construction	1,560	1,450	−7.1
Public utilities	4,400	4,425	+.6
Railroads	375	325	−13.3
Telephone and telegraph	625	650	+4.0
Other public utilities	3,400	3,450	+1.5
Local transit	25	25	0
Pipe lines	300	325	+8.3
Electric light and power	1,900	1,950	+2.6
Gas	1,175	1,150	−2.1
All other private	120	125	+4.2
PUBLIC CONSTRUCTION	11,475	12,100	+5.4
Residential building	340	250	−26.5
Nonresidential building	4,605	4,450	−3.4
Industrial	1,570	1,050	−33.1
Educational	2,070	2,400	+15.9
Hospital and institutional	350	400	+14.3
Other nonresidential building	615	600	−2.4
Military facilities	925	1,100	+17.6
Highways	3,550	4,200	+18.3
Sewer and water	975	1,050	+7.7
Miscellaneous public-service enterprises	200	215	+7.5
Conservation and development	720	675	−6.3
All other public	150	160	+6.7

Dixon-Yates

Early construction start seen on controversial $107-million power plant

Construction of the $107-million steam power generating plant at West Memphis, Ark, has a good chance of getting under way soon, now that the so-called Dixon-Yates contract has been signed.

The contract has been the center of a political quarrel since June. It was disclosed then, during hearings on the new atomic energy law, that the Atomic Energy Commission was engaged in negotiations with the Dixon-Yates group for the supply of 600,000 kw of electric power to reduce AEC's take of Tennessee Valley Authority electricity.

Last week a solution seemed to have been worked out. Die-hard public power members of Congress, of course, refused to accept the final version of the contract and promised to continue their efforts to kill it. But it had, at long last, become a legal contract, signed by assistant AEC general manager R. W. Cook and Edgar H. Dixon, president of the Mississippi Valley Generating Co., the newly formed Dixon-Yates firm.

Seven major revisions to the agreement were made at the last minute, apparently in an effort to get the contract signed so that construction could get under way before the Mississippi River flood season sets in.

Briefly, the contract provides.

- That MVGC put up $5.5 million in equity capital, borrowing the rest of the $107 million needed to finance construction.
- That, within 32 months, MGVC begin delivering one-third of the 600,000 kw contracted for.
- That, within 34 months, MGVC start delivering the second one-third of the power.
- That, within 36 months, full-scale delivery be instituted.
- That the government is obligated to take 600,000 kw of the 650,000 kw net capacity of the plant continuously for the life of the contract.

Some last-minute language was added to provide for an arbiter to settle contract disputes and to give the AEC the right to prior approval of any firm chosen architect-engineer or constructor.

During discussions on the project, the Army Corps of Engineers was called in to comment on the chosen site. The power house will be on the landward side of the Mississippi levee at West Memphis, Ark., opposite Memphis, Tenn. Among the recommendations made to Dixon-Yates officials by Brig. Gen. John R. Hardin, president of the Mississippi River Commission, were:

- Mooring dolphins for a barge landing should be of light pile construction so as to be replaceable economically in case of damage.
- The intake line for cooling water should be a buried pipe instead of an open channel as planned.
- The St. Francis levee district should be consulted in connection with location of pipes over the levees, the location of the ash disposal area and other points which will require their consent.
- The main plant should be placed on a fill of sufficient height to prevent frequent inundation by backwater.
- The plant structures below grade on river and land sides of levee should be located so as not to intercept levee slope extended.
- Adequate provision should be made for reinforcing the revetment in locations where it will be necessary to pierce the mat.

It was not known how many of these recommendations Dixon-Yates plans to follow, but, after the conference, Hardin reported, "They seemed to be pleased with the conference—we aimed to be helpful rather than obstructive."

Jobs in the News

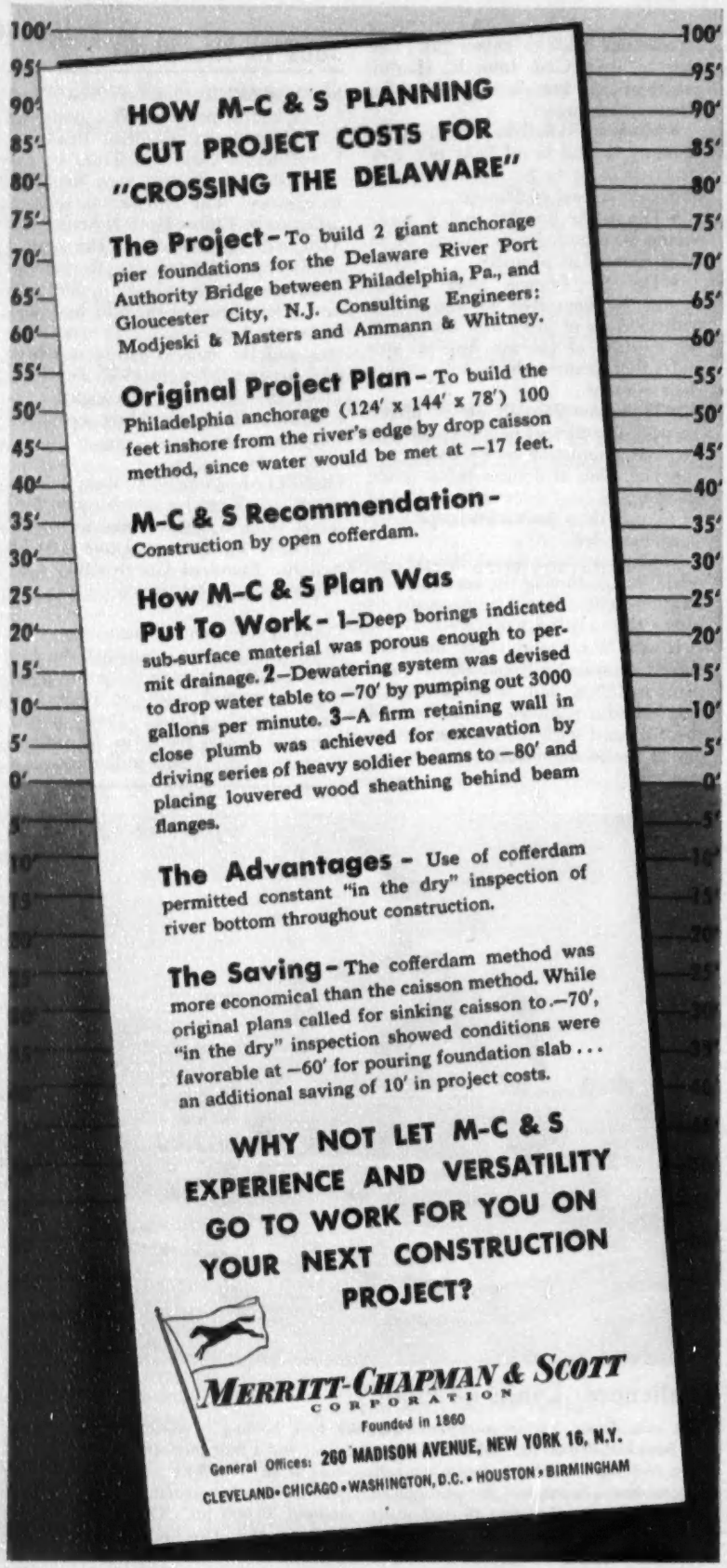
SKYSCRAPER—One of New York City's largest postwar office buildings will be built by Tishman Realty & Construction Co., New York, on the west side of Fifth Ave. near Rockefeller Center. The 34-story skyscraper, designed by Emory Roth & Sons, New York, will harmonize with the general architectural style of the Rockefeller buildings. Estimated cost is $40 million. Demolition of the nine buildings to be razed will commence next summer and the new structure is scheduled for completion in 1957. For Tishman, this will be the eighth air-conditioned office-building operation since the war.

HOSPITAL—General Services Administration will erect a new hospital center at U. S. Soldiers Home in Washington, D. C. Estimated cost is $15.8 million. Standard Construction Co., Washington, is contractor.

DAM—Lytle Green Construction Co., Sioux City, Iowa, submitted the low bid for construction of the power plant foundation and roads at Bureau of Reclamation's Glendo Dam in the Missouri River Basin in Wyoming. Estimated cost is $6.7 million.

Helicopter Lands on Float

A new device, known as a Heli-Float, has been installed on the roof of a Phoenix, Ariz. building to reduce impact when helicopters land. It employs the principle of even distribution of weight through water to make possible roof-top landings without extensive building changes. It consists of a tank holding a minimum of 2 in. of water and a float measuring 11x16 ft. The float is an 8-in.-thick sandwich of metal plates with a honeycomb core, designed to support 30,000 psf. The Heli-Float was built by the Thompson Research Co., Mesa, Ariz.


HOW M-C & S PLANNING CUT PROJECT COSTS FOR "CROSSING THE DELAWARE"
The Project - To build 2 giant anchorage pier foundations for the Delaware River Port Authority Bridge between Philadelphia, Pa., and Gloucester City, N.J. Consulting Engineers: Modjeski & Masters and Ammann & Whitney.
Original Project Plan - To build the Philadelphia anchorage (124' x 144' x 78') 100 feet inshore from the river's edge by drop caisson method, since water would be met at −17 feet.
M-C & S Recommendation - Construction by open cofferdam.
How M-C & S Plan Was Put To Work - 1–Deep borings indicated sub-surface material was porous enough to permit drainage. 2–Dewatering system was devised to drop water table to −70' by pumping out 3000 gallons per minute. 3–A firm retaining wall in close plumb was achieved for excavation by driving series of heavy soldier beams to −80' and placing louvered wood sheathing behind beam flanges.
The Advantages - Use of cofferdam permitted constant "in the dry" inspection of river bottom throughout construction.
The Saving - The cofferdam method was more economical than the caisson method. While original plans called for sinking caisson to −70', "in the dry" inspection showed conditions were favorable at −60' for pouring foundation slab . . . an additional saving of 10' in project costs.
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CITY BY CITY

First of Its Kind

Philadelphia—The Philadelphia Redevelopment Authority has set up plans for the first project of its kind in the area—a $10-million apartment house to be built and owned by private interests.

Parkway Triangle Corp., which would build the project, would pay the $10-million construction costs as well as $75,000 annual rent for use of the land. The developers also have an option to buy the land for some $1.6 million. The authority would get the project under way with an initial outlay of $2.3 million for such items as land acquisition, demolition, temporary financing and administrative costs.

Plans call for four 18-story buildings (880 dwelling units) to be erected on the south side of Benjamin Franklin Parkway in central Philadelphia. The nine-acre plot now is occupied by what the authority describes as a "dilapidated hodgepodge" of houses, commercial properties, institutions and factories.

The Problem: Pollution

San Francisco—Navy installations in the San Francisco Bay area are polluting Bay waters—and the cure will cost some $7 million. Findings by the Bay Area Regional Water Pollution Control Board have singled out the Mare Island Naval Shipyard and installations on Yerba Buena and Treasure Islands as chief offenders.

Most of the $7 million will have to be spent on Mare Island, building interceptors to collect sewage flow from the huge repair installation.

The Bureau of Yards and Docks already has inserted a $15-million fund request in the fiscal 1956 budget for pollution control at Navy bases. And $9.5 million of this is earmarked for the 12th Naval District, where the Bay Area installations are located.

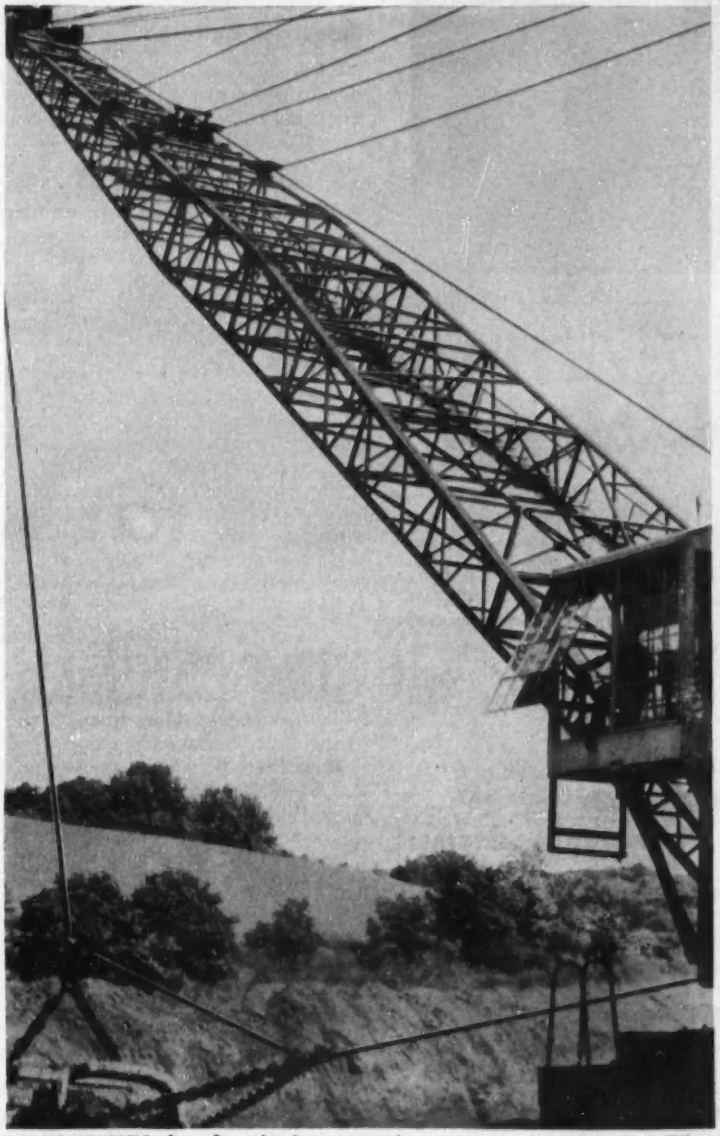
Phase Number Four

Nashville—Construction of Nashville's $11-million sewage disposal facility has moved into the fourth major phase with advertisements for bids on 3½ mi of open-cut interceptor sewer. Some $1.1 million already has been set aside for the work (ENR May 7, 1953, p. 54).

The project will provide a link with the northern terminus of the interceptor tunnel now under construction. Then it will loop around the Cumber-

(*Continued on page 30*)

TROUBLE-FREE SERVICE around the clock from Tiger Brand Drag Rope



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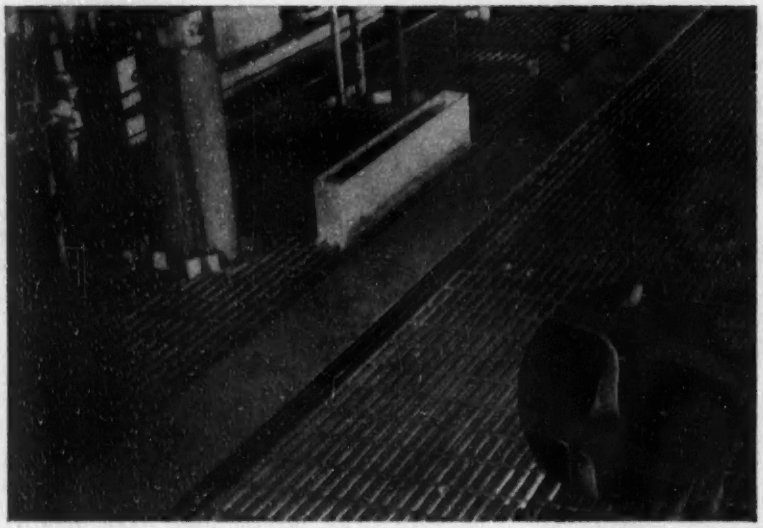

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GRATING APPLICATIONS: floors • platforms • walkways • catwalks • stair treads • fan guards • shelving • and many other uses, both outdoors and indoors, for versatile steel grating

land River to connect with the projected sewage treatment plant in West Nashville.

Plans for the final phase of the project—including construction of the plant itself—are expected to be finished early next year.

Industrial Build-up

Glendale, Calif.—Work on the beginning phase of a $55-million industrial development on the 180-acre Grand Central Air Terminal is slated to get under way within 30 days.

From 125 to 150 buildings are expected to go up on the site within four years, according to Co-Ordinated Construction Co., Inc., Los Angeles industrial developers and builders.

Airport Dedication

Toledo, Ohio—Toledo has dedicated its new $3.8-million airport at Oak Openings Park—a project financed completely by the city without outside aid.

The site covers 1,000 acres and is 15 mi from the downtown section. The apron area is 300 ft wide and 1,710 ft long; the principal runway, 5,200 ft long, and the cross-wind runway, 4,300 ft long.

Awards on the Way

Seattle—A construction start on the $17-million Gorge High Dam on the Skagit River is one step nearer. Bid openings for the job—postponed several times this fall because of design changes—are now set for Dec. 1.

The new dam, to be built for Seattle City Light Co., will increase the utility's Gorge power plant capacity from 108,000 kw to an estimated 155,000 kw (ENR June 3, p. 23).

Search for Safety

Buffalo, N. Y.—After taking stock of Buffalo's decreasing traffic safety rating, the city council has decided to hire the Northwestern University Traffic Institute to make a survey of traffic conditions.

The decision was made after reports showed that Buffalo had dropped from first place in 1952 to sixth place in 1953 in the National Safety Council's national safety rating.

Product of Patience

McKeesport, Pa.—For 50 years Baltimore & Ohio Railroad and McKeesport officials have been trying to agree

(*Continued on page 32*)

HOW TO CLEAR SNOW *at a saving!*

It's Easy with the low cost FORD Tractor

CLEAR LARGE AREAS QUICKLY

Dearborn Blade Snow Plow windrows snow to right or left in a hurry. Six foot blade lifts and lowers hydraulically...attaches quickly to Dearborn Industrial Loader. End plates and skid shoes are available for special jobs.

Ford TRACTOR

More and more economy-minded governmental officials are finding the Ford Tractor a money-saving way to solve snow removal problems. Here are two important reasons why:

TAKES WINTER WEATHER IN STRIDE—**The Ford Tractor and Dearborn Industrial Loader with Snow Bucket will load, lift and dump over ½ yard of snow at a "bite". And it does all this hydraulically at the nudge of a lever. It's highly maneuverable for work on crowded parking lots, busy streets and sidewalks. Highly versatile, too . . . rear mounted blade can be used to windrow snow, or to clean curbsides even while front mounted loader is in operation.**

KEEPS BUSY ALL YEAR LONG—**Snow removal is just one of the many jobs that the low cost Ford Tractor does economically. During the rest of the year you can use it for sweeping, grading, digging, loading and mowing. You can use it to maintain parks and roadsides, as well as roads and streets.**

Before *your* snow problems pile up this winter, take a look at the versatile Ford Tractor. Find out how it can handle snow right now--saves you money on dozens of other jobs all year long. See your nearby Ford Tractor and Equipment Dealer or write to the address below.

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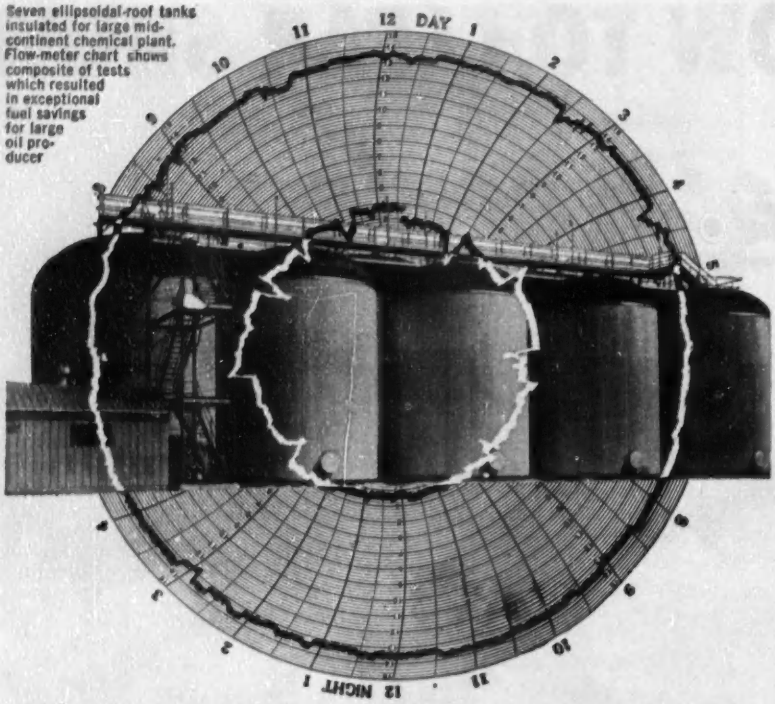


Seven ellipsoidal-roof tanks insulated for large mid-continent chemical plant. Flow-meter chart shows composite of tests which resulted in exceptional fuel savings for large oil producer

"FUEL SAVINGS TRULY AMAZING"

says top executive recommending new tank insulation method

PAYS OUT COSTS IN 4 TO 18 MONTHS

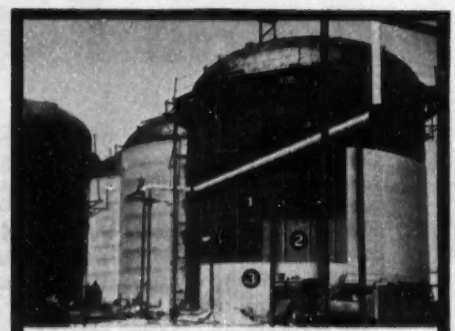
We quote from a letter one big oil company wrote another about the Nicholson & Galloway 3-stage Tank Insulation Method:

"We have had seven of our larger asphalt storage tanks insulated by their method of aluminum cladding... over a period of two years. The results in fuel savings have been truly amazing and far beyond our Engineering Department's expectations. The work has been carefully supervised and handled and we can recommend this firm and their methods most highly to you."

For details on cost of insulating your tank or vessel send for Pamphlet E

TANK INSULATORS INC.
426-428 EAST 110TH STREET
NEW YORK 29, N.Y.

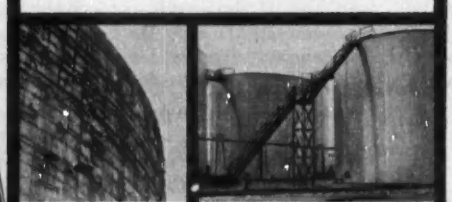
Phone ENright 9-5004



Stage 1 Tank or vessel surfaces are divided into areas bounded vertically by channel sections

Stage 2 Insulation of any specification or thickness is snugly installed within these areas

Stage 3 .024 Corrugated Aluminum Sheathing, Asbestos Transite, Monel or Stainless Steel then covers and protects insulation for life of tank.



Conventional insulation shreds and fails loose when weather - proofing fails and metal bands expand.

Three asphalt tanks 50-foot diameter 48-foot high insulated for large southwestern oil refinery.

on the way to get rid of 23 grade crossings where tracks cut the heart of the city in half. Now—as a result of new negotiations—the city seems ready to accept the railroad's $12-million plan to elevate the tracks and split the cost.

McKeesport officials preferred a tunnel to elevated tracks. But, their solution would cost an estimated $18 million.

The city's acceptance of the elevated plan—as drawn up by the B&O in 1937—would leave only details of financing the project to be solved.

State Office Center

Baltimore—A new $11-million state office center will rise in the middle of a 17-acre slum redevelopment site to dominate the northern skyline of downtown Baltimore. Design drawings are under way. The project is scheduled for completion in 1958.

The main rectangular structure—the State Office Building—will be 15 stories high, the top floor housing the governor, the legislative council and a press room. Projecting southward will be a two-story wing for several state agencies.

The main structure, through extensive use of bluish heat-absorbing glass, will resemble the United Nations Building. But its glass expanse will be broken by a gridwork of vertical limestone strips and thin, aluminum horizontal lines.

Among the building features will be six electronic elevators that need no operators. An underground garage will store about 100 state-owned cars, while parking space for some 900 more automobiles will be provided for in surrounding blocks.

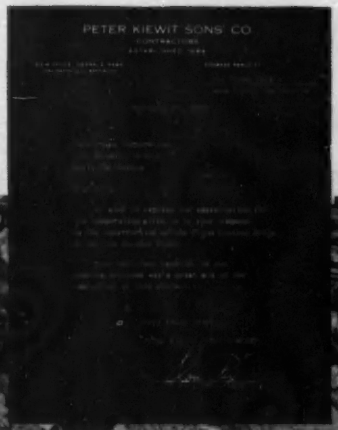
Spring Expressway Start

Toronto—Construction of Toronto's $60-million lakeshore expressway—the first such cross-city project in Canada—has been approved by the Metropolitan Council. Working plans now are being prepared and a start on two sections is expected to begin next April.

The expressway will pass through the city to join Queen Elizabeth Way on the western outskirts with the No. 2 Highway to Kingston on the east side.

Much of the expressway will be elevated on steel structures, the extent depending on future traffic density in downtown districts. The project originally was planned to carry 150,000 cars daily (ENR, Oct. 29, 1953, p. 58).

Unsolicited letter received from Peter Kiewit Sons' Co., contractors on the Los Angeles River Flood Control Project, U. S. Army Corps of Engineers.


PETER KIEWIT SONS' CO.

Dry job well done!

To construct control sill, it was necessary to excavate to 25 feet below river bed at mouth of Los Angeles River. Because material was completely saturated, stratified and highly unstable, Stang engineers were consulted and a wellpoint system was expertly installed to remove ground water. Tide water was withheld by earth dyke across mouth of river . . . surface water up to 100 cfs was diverted by pump battery. Project was completed safely, speedily, economically. To solve *your* water handling problem—any size, any type, anywhere—call on Stang's extensive experience and equipment. 100-page catalog furnished free upon request.

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NEWEST AIRPORT TERMINAL BUILDING is the one opened in September at San Francisco. Two 420-ft-long fingers project out from the terminal area proper and a third, 150 ft long, projects from the end of a 500-ft concourse, to serve 27 airplane positions.

What's New in Airport Terminal Buildings?

Recently built structures are planned for smooth passenger traffic and rapid baggage handling to and from planes, but there still is room for improvement

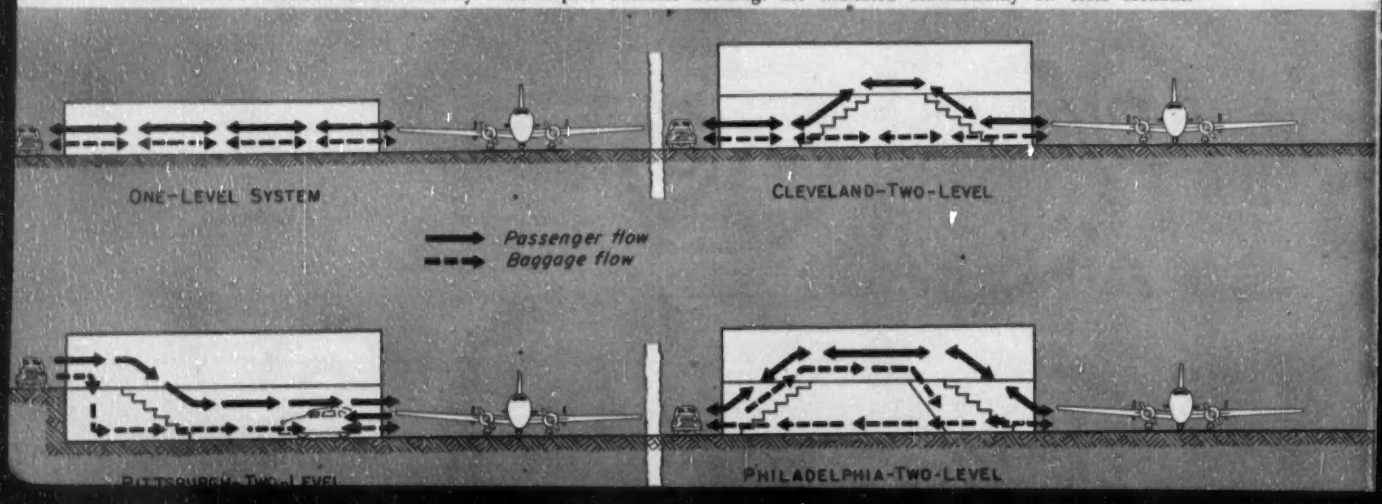
Frederick S. Merritt
Associate Editor

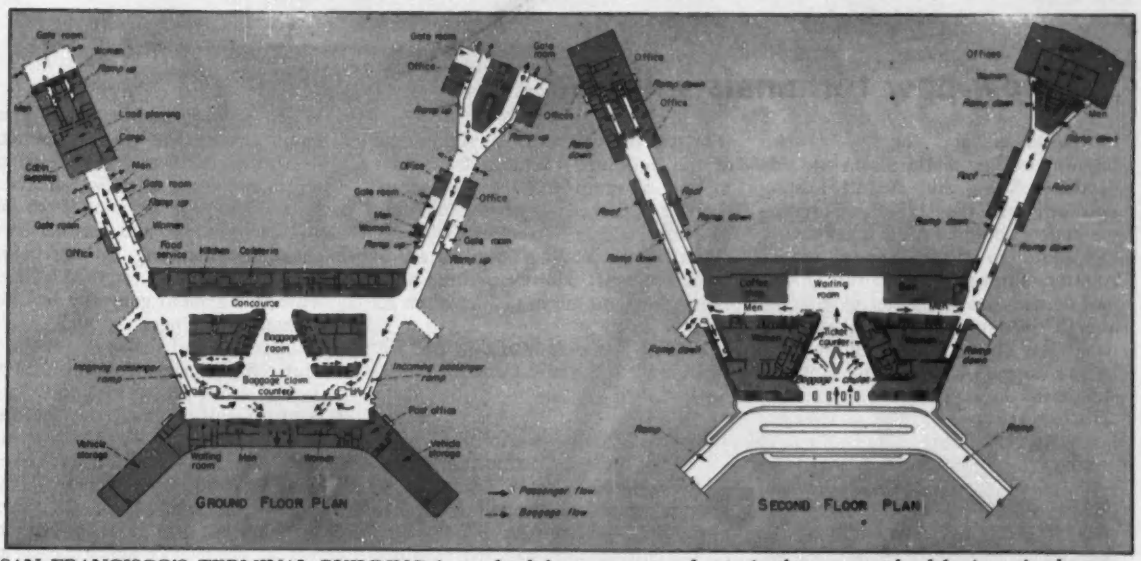
Airports at most of the major cities in the country—and at many smaller cities as well—currently are in the process of getting new terminal buildings. The design of these structures indicates that much has been learned in recent years about how to make them more efficient, both from the viewpoint of passengers and airlines.

Passenger traffic has been separated from baggage flow. Routes to be followed through the terminals have been simplified and reduced in length as much as possible consistent with the number of planes serving the airport. In recognition of the fact that spectators greatly outnumber passengers, spectator traffic has been separated from passenger traffic in many new terminal buildings. Many also have elaborate lobbies and commodious waiting rooms with large glass areas facing the airfield. Though a considerable improvement over their predecessors, the new designs, nevertheless, contain some defects that would be well worth while to eliminate.

• **Future expansion planned**—Replacing out-moded and inconvenient facilities, which air travelers have complained about for years, the new terminal buildings were planned with the principal objectives of simplifying and speeding passenger and baggage flow.

OPERATING SYSTEMS for recently built airport terminal buildings are indicated schematically on cross sections.





SAN FRANCISCO'S TERMINAL BUILDING is two-level for passengers and outgoing baggage, one-level for incoming baggage.

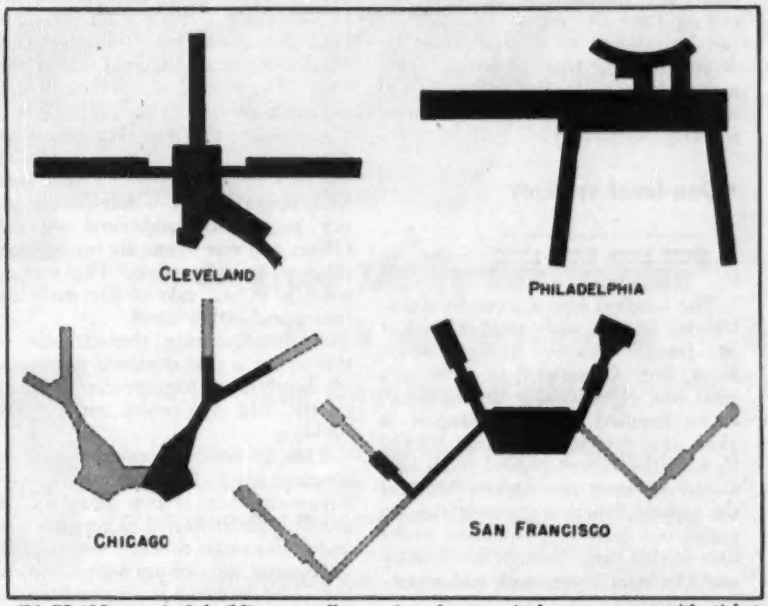
They also were designed to permit easy, inexpensive expansion when needed for future traffic growth.

To meet expansion requirements, the terminals are being built in stages, the first stage usually adequate for activities anticipated ten years ahead. First-stage construction was completed at the Greater Pittsburgh Airport in June, 1952, at Philadelphia International Airport in December, 1953, and at San Francisco International Airport in September, 1954, to mention a few. First-stage construction is still under way at St. Louis, Cleveland and Chicago, to be finished in 1955. And new terminal buildings are being planned for the New York and Los Angeles International Airports.

• **Design criteria**—In general, the buildings satisfy design criteria proposed by the Civil Aeronautics Administration, ("Airport Terminal Buildings," April, 1953).

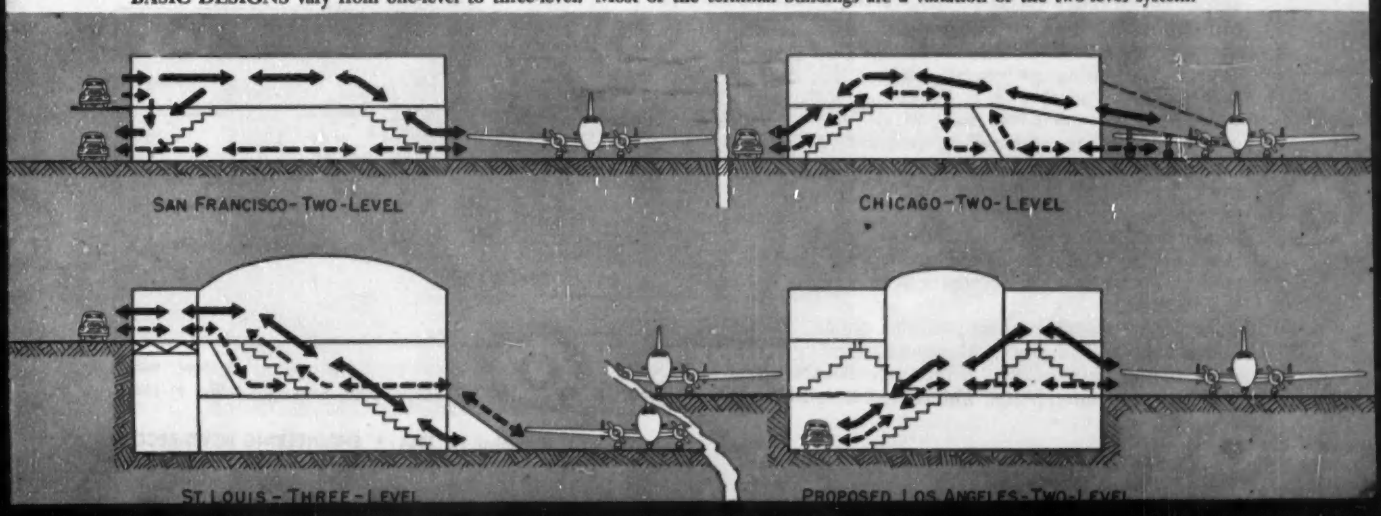
These criteria require that the layout allow simple and direct circulation

(Continued on page 36)



IN PLAN, terminal buildings usually consist of a terminal area proper with ticketing and baggage collection facilities and long, two-story concourses, or fingers.

BASIC DESIGNS vary from one-level to three-level. Most of the terminal buildings are a variation of the two-level system.



. . . How new terminals will operate

for passengers and baggage between highway loading platforms on one side of the building and aircraft loading positions on the other. Outgoing passengers should follow a self-revealing route to the passenger service counter, through the waiting room, past concessions and toilet facilities to aircraft loading positions. Deplaned passengers should follow a direct route to the baggage-claim counter, which should be located near the exit and vehicle platform. Baggage should follow as direct a route as possible from the check-in point to airplanes, and from airplanes to the baggage-claim counter.

Depending to a large extent on the number of passengers to be handled, the number of airlines serving the terminal and the number of flights operating from the airport, the criteria can be satisfied to a large extent by several different types of layout. This is demonstrated by the designs of terminal buildings under construction or recently completed.

• One-level systems

The simplest type is a one-level centralized system, such as that used at St. Joseph County Airport, South Bend, Ind. Completed in 1949 at a total cost of $600,000, the terminal, which handled 57,000 passengers in 1953, is a two-story building, 80x420 ft, with the airport control room in a 4-story tower at one corner. Most of the ground floor is a concrete slab on grade, but there is a basement under one section large enough for heating and electrical equipment and restaurant storage.

One wing of the building contains offices for the four airlines serving the airport. On the ground floor, each airline has a ticket counter facing a corridor leading from the building entrance. Off this corridor are three alcoves for waiting passengers. Baggage is checked in at a ticket counter and passed through an opening in a wall into the baggage-handling area, which is on the field side of the structure. A baggage-claim counter for deplaned passengers, a large waiting lounge and small coffee shop are also located on the first floor. A big restaurant for complete meals occupies the second floor.

Access to aircraft loading positions is available in two places at ground level. One is via a walkway at the end of the ticket-counter wing. The other is by way of a concourse at the middle of the building. Distance from door to end of ramp is 75 ft, and from there to parked airplanes, another 65 ft.

Only three loading positions are in use at present. However, three additional positions are available, when required.

Parking space is available for 700 cars about 100 yards from the building entrance.

• **Evansville's design**—Another example of the one-level centralized system is the one-story, 241x73-ft terminal building at Evansville Municipal Airport, Ind., which cost $528,000 to build and which handled 153,000 passengers last year. It has two wings. Ticket counters for two airlines are located along a corridor off the main entrance in one wing. Baggage-handling areas are on the field side of this wing. The second wing contains dining facilities.

Access to the field is through a main concourse at the center of the building, between the two wings. It is lined with display cases, which are rented out to provide additional income. Offices and rest rooms are on opposite sides of the concourse. The waiting room is at one side of the main entrance and rather small.

A distinguishing characteristic of this layout is that deplaned passengers are directed to a baggage-claim counter on the field side before entering the building.

This terminal has exterior walls of concrete block, brick and stone, with aluminum trim. Floors and roof are mostly cellular-steel decking and concrete. Floors are finished with asphalt or terrazzo, and ceilings with acoustical tile. The building is air conditioned, heat from natural gas being used for summer cooling and winter heating.

• Unit systems

When a large number of airlines serve an airport, the one-level system is sometimes developed in a unit, or decentralized form, as at Boston. Each airline is housed in a unit of an elongated building and has its own facilities for handling of passengers, visitors, baggage and cargo.

This arrangement generally requires interchange passengers to walk excessive distances, and makes it necessary for interchange baggage, mail, express and cargo to be moved long distances. It tends to confuse casual travelers and visitors searching for a particular airline, because of lack of central ticketing, waiting and meeting areas for the use of all passengers. It is also inconvenient for passengers who have to decide at the airport which airline to use and to make arrangements there for a suitable departure time.

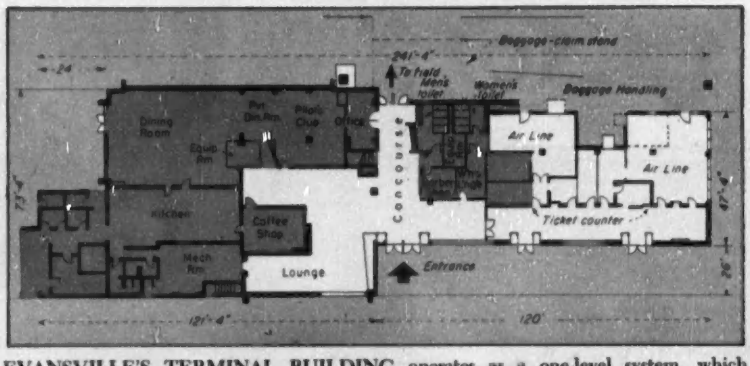
A unit system building is expensive to build and operate because of duplication of public facilities and concessions. Furthermore, concessionaires may expect a lower financial return because of the dispersion of potential customers.

• Two-level systems

To avoid the delays and hazards encountered in terminal buildings housing many airlines, serving large numbers of passengers and requiring numerous service vehicles, most of the large new terminal buildings are two-level or split-level, for vertical separation of traffic.

• **Cleveland's scheme**—At Cleveland's Hopkins Municipal Airport, which is now under construction, for example, the system adopted actually is one-level for baggage handling but two-level for passengers. The terminal building consists of a two-story ticket and baggage wing, a two-story main

(*Continued on page 38*)



EVANSVILLE'S TERMINAL BUILDING operates as a one-level system, which is suitable when an airport is served by few airlines and passenger traffic is small.

Modern retail food store

Low-cost industrial building

Two-story warehouse

Light, firesafe school

Eight-story office building

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. . . Terminals geared for the future

terminal area and a seven-story tower capped by a control cab.

Outgoing passengers coming through the main entrance at ground level will find ticket counters for ten airlines on the right. Baggage will be taken directly from those areas to the field, while passengers will travel by moving stair or elevator to the second floor of the main terminal area. There will be the main lobby, waiting room, concessions, restaurant, cocktail lounge and even roomettes. From this floor, passengers will descend a ramp to flight level. A second ramp will connect with a 500x50-ft spectators' deck.

Deplaned passengers will walk from field level up a ramp to the second floor of the main terminal area, through the lobby and then downstairs to the baggage-claim counter. This will be conveniently located at ground level near the main entrance.

Under the main terminal area, at ground level, will be kitchen, post office and air-express facilities, boiler room, maintenance shop and storage. On the second floor of the ticket and baggage wing will be airline offices. The upper floors of the tower will have office space for meteorologists and airport administration.

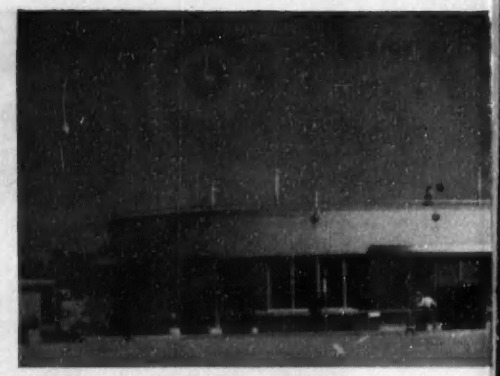
In anticipation of heavy spectator traffic (estimated to outnumber passengers four to one), a ramp and tunnel will be built directly from the parking lot to the second floor of the main terminal area. From there, visitors will pass through the concession area on the way to the spectators' deck with a minimum of interference with passengers.

For service and baggage trucks, there will be a service drive on two sides and the rear of the building depressed 6 to 7 ft below runway level. This road will have access on two sides to a main highway. Baggage will be picked up from the rear of the baggage wing by service vehicles using this road and transported to planes with no interference from other traffic. The vehicles will also be able to travel through a tunnel across the main terminal area at ground level.

To minimize traffic snarls, vehicular traffic may be separated vertically at the front of the building. Private cars and buses will ascend a ramp and leave passengers at second-floor level. Taxis and limousines will serve the ground floor.

Planned as part of a 15-stage construction program for the airport, the initial stage of the Cleveland terminal building will be completed next year at a cost of $6.5 million. By 1960, it is expected to handle 1,800,000 passengers annually.

One concourse was completed early this year, and structural steel has been erected for the terminal building proper and ticket wing. Another concourse is expected to be built in the near future, while the date for starting a third concourse has not yet been set.



• Pittsburgh's layout—At the Greater Pittsburgh Airport, the $9 million terminal building can operate as both one and two-level. The structure was opened in 1952 and handled nearly 600,000 passengers in 1953. It consists of a 90x820-ft curved main element and a 580x96-ft dock projecting to the south to serve airplane loading positions. The dock incorporates waiting rooms and a driveway and turnaround at field level. The terminal building proper is mostly four stories high on the field side and three stories on the main-entrance side.

Outgoing passengers enter the main terminal area at second-floor level, cross a large lobby and go to a ticket counter, where baggage is checked in. They then descend to a lounge in the dock at field level, to await a plane.

Deplaned passengers collect baggage at field level in the dock. After that, they may enter a limousine, which leaves via the driveway along the middle of the dock, or ascend to the second floor, walk the length of the main corridor and leave via taxi or private car at the main entrance.

Also included in the terminal building are a motion picture theater with 330 seats, dining room and terrace with a total capacity of 800, cafeteria for 3,000 employees, coffee shop for 450 persons, stores, post office, bank, offices and 62 hotel rooms. Nearby is a parking lot for 5,000 autos. In the near future, a second dock will be built on the east, and ultimately, a third dock on the west.

Experience with the existing setup has led to a proposal by the Allegheny County Department of Aviation that the south dock be altered and the proposed east dock be designed differently. The department wants the south-dock driveway and turnaround area, which occupy more than 50% of the field-floor area, replaced by a consolidated waiting room of at least

PHILADELPHIA'S TERMINAL BUILDING is almost all glass on the field side.

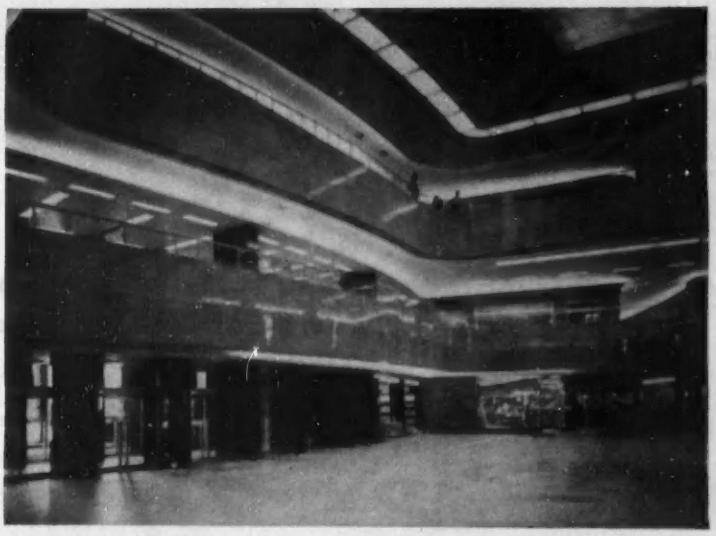
PITTSBURGH'S TERMINAL BUILDING, in its initial stage, consists of a curved main element (rear) and a long dock, with gate rooms to plane loading positions. Inside are a theater, hotel, bank, post office and curved, glassed-in dining room (atop dock).

8,800 sq ft, instead of the existing 1,920 sq ft; and the restroom area increased from 440 sq ft to 1,250 sq ft. In addition, a moving stair would be installed from the baggage pickup and limousine waiting room to the lobby area, and increased space provided for airlines operation, baggage-processing and baggage-receiving.

The change would also eliminate conflict between the flow of enplaning and deplaning passengers, enable indoor queing of passengers and permit control over visitors and travelers going outdoors at field level. A three-stall loading platform and waiting room for incoming limousine passengers would also help reduce this traffic confusion. Total cost of the alteration is estimated at $200,000.

For the new east dock, the department recommends that no driveway be provided and that the structure be kept short to eliminate need for side

(*Continued on page 42*)



MAIN LOBBY at Pittsburgh is high-ceilinged. Outgoing passengers cross it to get to ticket counters, then descend to a lounge at field level to await a plane.

LOUNGE on the third-floor offers good view of field.

Phila. photos courtesy of Airways Engineering Corp.

TICKET COUNTERS are on the brick-floored second level.

how ceco engineering a school of changing

MET ARCHITECTS' REQUIREMENTS FOR 35-FOOT VERTICAL WINDOW TREATMENT WITH NARROW HORIZONTAL LINE RELIEF

Behind the bold, imaginative design and engineering that built the Keokuk, Iowa High School is a story of how Ceco helped solve a knotty lighting problem and achieve the architect's aim.

The Problem: Architects Perkins & Will visualized a design that would relieve the broad reaches of the Iowa countryside with a vertical effect and at the same time achieve a functional approach to better daylighting. Mindful that students need natural daylight, and relief for their eyes by gazing at distant outside scenes, the architects wanted a "wall of windows" that would perform all functions to an optimum degree. Standard window treatment would have left unsightly horizontal lines to mar the design's bold vertical appearance. Since the vertical lines of the windows were accentuated by the mullion treatment, it was believed necessary to minimize horizontal lines by keeping them narrow and of the same size. Here's how Ceco helped solve the problem: To create the illusion of a single 35-foot tall window, three Ceco Standard Steel Architectural Projected Windows were nested one on top of another and welded together by Ceco Construction Crews in the field. Vertical expansion was made possible by clips at the head and sill of each unit. Horizontal expansion was accommodated through the joints at the vertical "T" mullions. Thus, at no extra cost, the effect desired by the architect was achieved . . . a massive expanse of vertical lines, uninterrupted by heavy horizontal sight lines at the windows. The assembly method provided a tighter weatherseal, and a color scheme of windows that was most unique. For areas needing ventilation at inaccessible heights, mechanical operators were installed for easy control from the floor.

The Result: Viewed from a sharp angle, the protruding "T's" give the effect of a wall of steel. As the viewer moves toward right angles to the building, the windows begin to unfold, until, viewed head-on, they have the effect of a wall of 35-foot high windows. The "School of Changing Faces" is another example of architect-contractor-supplier teamwork in action. Next time consult Ceco on your building problem. Consult Sweet's files for Ceco windows and screens. (CECO STEEL)

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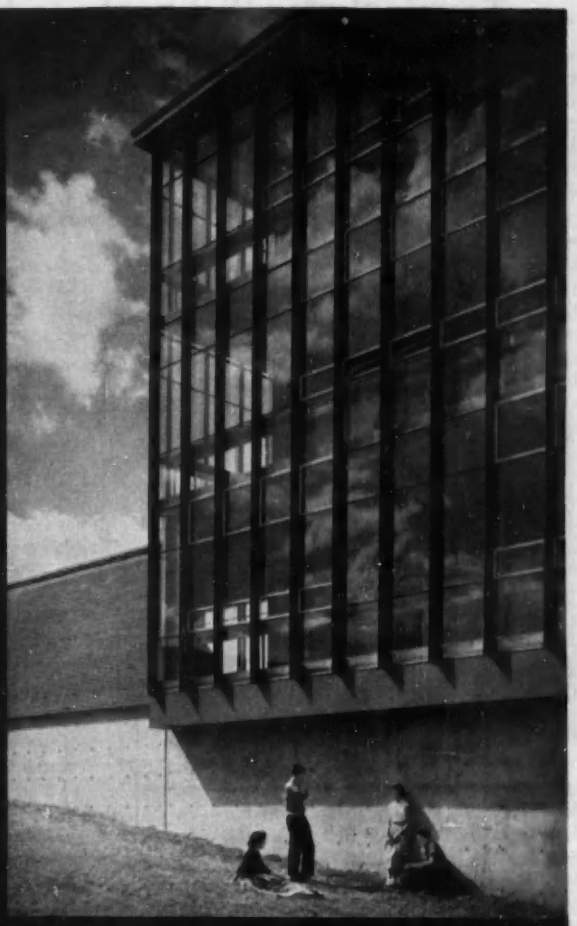
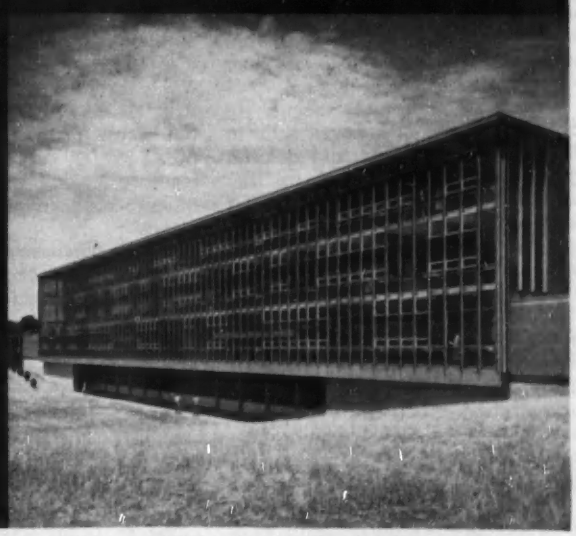
provided faces . . .

Case history of CECO on-the-job performance

Here is another example of how architects achieve bold originality through the use of standard Ceco windows.



1—*View of wall of windows in Keokuk High School. Note how the "T" mullions create an illusion of a steel wall in the distant areas of the school face.*



2—*As you move around this wing of the Keokuk High School, the face of the building begins to change in character as the windows become more evident, the mullions less prominent.*

. . . Terminals for flights abroad

stairwells. The width probably will be cut from 96 to 86 ft. Airline ticket counters will be placed at the base of the dock at second-floor level, while baggage-claim counter and limousine loading will be located at the base of the dock at field level.

• **Philadelphia's system**—A different variation of the two-level system is used for the $10 million terminal building at Philadelphia International Airport, which handled 761,141 passengers last year. The system is two-level for passengers and outgoing-baggage, one-level for incoming baggage.

The building is 1,100 ft long. The main portion is three stories high, topped by a small fourth floor and control tower. Two fingers, or concourses, 25 ft wide and two stories high, project 525 ft from the building to serve airplane loading positions.

Outgoing passengers enter at first-floor level and are conveyed by moving stair to the second floor for ticketing and baggage checking. Baggage is moved to airline collection points at field level by conveyor belt, eliminating damage from chute drops. Passengers walk along the second floor of a finger and then descend to a loading position at field level. Provision has been made, however, for future installation of adjustable covered ramps leading directly from the second floor to planes.

Deplaned passengers ascend to second-floor level of a finger, walk to the main terminal area and descend to the ground floor to pick up baggage. Remaining at ground level after being unloaded from a plane, the baggage is brought by dolly train and conveyor belt to a baggage-claim counter adjacent to the main exit.

The second floor at the narrow end of the building is devoted to processing of passengers on international flights. While these passengers are being processed, a belt conveys baggage directly to Customs. Incoming baggage is reclaimed at the entrance to the wide portion of the building.

The structure has an exterior of brick, cast aluminum and glass. On the north side, which faces the access road, glass is used sparingly and for the most part in long, narrow strips. On the south side, facing the field, and in the fingers, large areas of glass are used to provide an unobstructed view of the airport from all public areas. Floors in public areas are brick.

The building, which is air conditioned, also contains 24 roomettes, a coffee shop, dining room and employees' cafeteria. It is equipped with a public-address system that can deliver messages simultaneously through 200 speakers.

A pedestrian ramp, with a built-in panel-heating system for de-icing, leads from a point near the main parking area to an observation deck. The parking area has a capacity of 1,500 cars, with provision for double that amount if expansion is necessary.

• **San Francisco's plan**—Another variation of the two-level scheme is employed for the brand new terminal building at San Francisco International Airport, which last year served 2,430,000 passengers. Like the plan

for the Philadelphia terminal building, the layout is two-level for passengers and outgoing baggage, one-level for incoming baggage. The new structure differs, however, in that outgoing passengers enter at second-floor level and deplaned passengers leave at first-floor level, instead of all entering and leaving at ground level.

Designed to accommodate 5,000,000 passengers per year before requiring expansion and 10,000,000 ultimately, the San Francisco terminal building cost $6,769,000 plus $1,375,000 for concourses. Air mail and cargo will be handled in a separate $435,000 structure. A service building and central heating plant cost $200,000; utilities, $480,000; apron, apron services, roads, parking areas, street lighting and walks, $2,223,000; and standby power plants, $163,000. Including $2,500,000 for purchasing and reclaiming land for the site, the total cost for the initial stage of terminal construction is $14,145,000.

The terminal building proper is 486x303 ft, providing 317,000 sq ft of floor area. It is seven stories high, plus a tower and mezzanine floor. It has a concrete-encased structural steel frame, with interior concrete shear walls to resist lateral forces. Exterior finish is stucco on concrete. In the ticket lobby, floors and wainscot are marble; elsewhere, floors are terrazzo.

Two 420-ft-long fingers, or concourses, two stories high, project out at the ends of the building to serve airplane loading positions, while a third, only 150 ft long, is connected to one end of the building by a 500-ft long concourse. This short concourse may be lengthened in the future, and two additional concourses may be added when needed. (At present, the apron provides 27 aircraft parking positions, but 15 more may be added in the future.) The concourses have a light steel frame, with porcelain-enameled-steel panel walls. Most of the panels are sandwich type, having an aluminum-honeycomb insulating core.

Outgoing passengers entering the terminal at second-floor level find information and ticket counters directly in front, in a 380 x 124-ft lobby with 34-ft high ceiling. As soon as it is checked in, baggage is lowered on a 38 x 42-in. lift to the first floor and automatically chuted to a baggage room for delivery to an airplane loading position. Twenty-six such lifts have been installed—one for each pair of ticket sale counters. With baggage on the way, passengers can proceed to the waiting room on the same level. Or they can walk directly to a loading gate at field level, via a concourse and one of the descending ramps on either side of the finger. The concourses have a gate room for each aircraft parking position, so that passengers will remain under cover if there should be a delay in boarding planes.

Deplaned passengers ascend a ramp to the second floor of a concourse, walk to the terminal building, then descend a ramp to the first floor to the baggage-claim counter opposite the main exit. Incoming baggage is moved from airplane loading positions to a 200-ft-long baggage-claim counter at ground level without crossing passengers' lines of travel. Two large-size elevators were installed at each end of the baggage-claim lobby, with stairs adjacent, for moving transferring passengers from first to second floors.

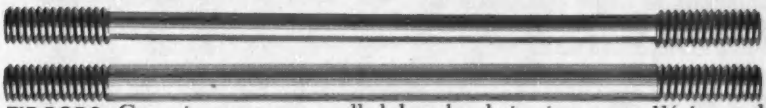
Public Health Service, Customs and related activities are housed at the outer end of one finger. Processing of people and baggage from foreign countries is completed before they mingle with others.

The principal restaurant is located on the fourth floor, airport administrative offices are on the fifth floor, and the CAA and Weather Bureau offices, on the sixth and seventh floors. Airline offices are maintained in the fingers. The public-address system has 370 speakers. Also, a parking area has been constructed with an initial capacity of 3,500 cars, with provision for expansion to 5,000.

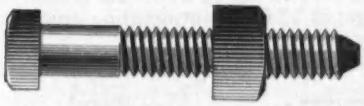
• **Chicago's design**—The plan for the terminal building under construction at O'Hare Field, Chicago, might almost be classified as 2½-level. The distinguishing characteristic of the scheme is the use of telescoping walk-

(*Continued on page 44*)

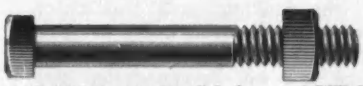
Here are the CONSTRUCTION FASTENERS you need



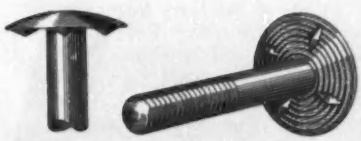
TIE-RODS. Come in two types – rolled-thread rods in sizes up to 1½ in., and plain or upset cut-thread rods in diameters up to 4½ in. All lengths. Straight or bent. Single or multiple units. Asphaltum-dipped or hot-dip galvanized.



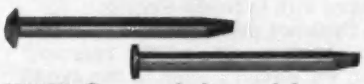
FITTING-UP BOLTS. Furnished untreated or heat-treated, with National Coarse or Modified Acme threads. All types come with semi-cone points.



MACHINE BOLTS. Made to ASTM Spec. A-7. Also come in standard grades of carbon or alloy steel. Cut or rolled threads, and square, hexagon, tee, button and countersunk heads. Wide range of sizes.

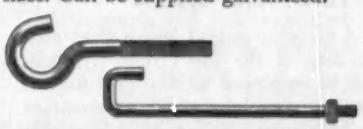


TIMBER BOLTS. Four diamond-shaped lugs under head for maximum grip. Will not turn in timber. Eliminates counter-boring and retards dry rot.

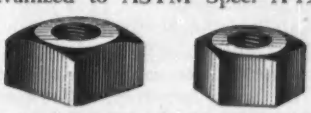


SPIKES. Come with diamond, button, nail, countersunk, and hook heads. All types have wedge points.

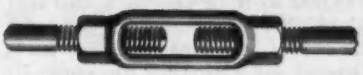
WASHERS. Made from steel plate or bars. Furnished round (standard and dock), square, and rectangular. All sizes. Can be supplied galvanized.



HOOK BOLTS. All sizes. Furnished with round, square, and right-angle bends. Also special bends. Can be galvanized to ASTM Spec. A-153.



NUTS. Hot-pressed. Cold-punched. Semi-finished. Square and hexagon. Furnished in all types and sizes.



TURNBUCKLES. Come in diameters from ⅜ to 2⅝ in., with 6-in. openings between heads. Right- or left-hand threads, with or without stub ends.

CLEVISES. Drop-forged. Generally tapped to Coarse-Thread Series, Class 2. Right- or left-hand threads, with or without pin and cotter.

SLEEVE NUTS. Tap diameters from ⅜ in. to 4 in. Usually tapped right-hand at one end, left-hand at other. Also furnished with right-hand threads throughout.

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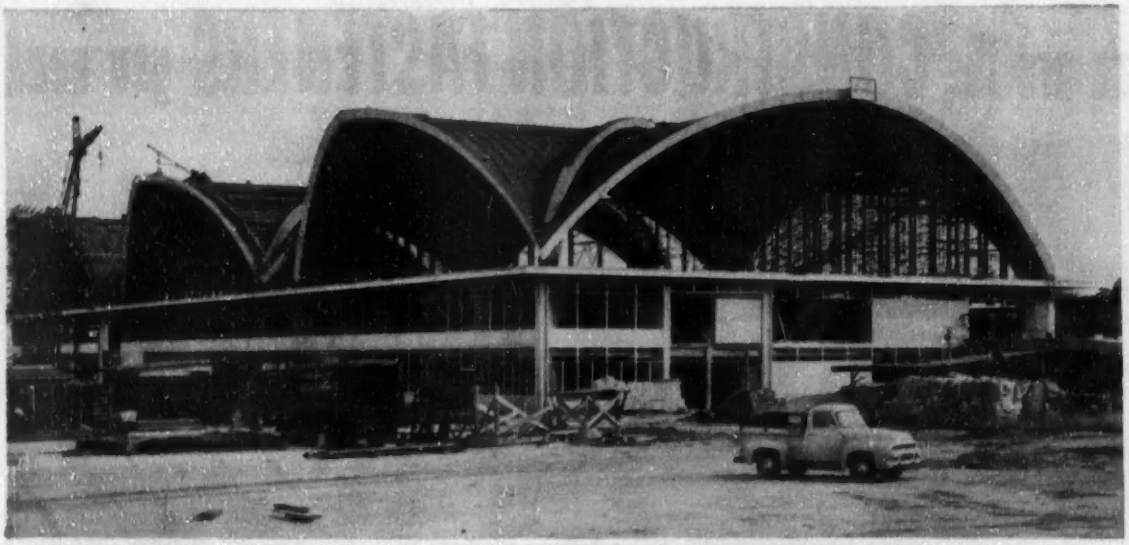


ST. LOUIS' TERMINAL BUILDING has a thin-shell concrete roof composed of three sets of intersecting cylinders.

. . . Some unusual terminal designs

ways between building and planes to enable passengers to enter and leave planes without descending to ground level.

The new terminal building, with 115,000 sq ft of floor area, will cost $1,880,000 in its initial stage. It will consist of a curved two-story main element and a two-story concourse, 50 to 185 ft wide by 500 ft long, with forked ends. Two fingers will project out from one corner. Capable of serving 16 planes at one time, plane loading positions will be located on opposite sides of the fingers and along the rear of the terminal building proper.

In the near future, the size of the main element may be doubled and another finger added. A new control tower is under construction now. The master plan provides for ultimate expansion to a circular concourse with five split-end fingers, to handle 90 airplanes simultaneously. In 1955, the building is expected to serve 3,000,000 passengers.

During the initial stage, outgoing passengers will arrive at a passenger loading platform at ground level. They will ascend on moving stairs to the luminous-ceilinged second floor, 15 ft above, where they will find ticket counters along the ends of the building and at the base of the finger. With baggage checked in and chuted to field level, passengers may then go to the second-floor waiting room. To board a plane, they will walk along a concourse and down one of a number of short ramps to a loading mezzanine. This floor, 9 ft above ground—about level with the door opening of most commercial passenger planes—will be connected to the planes with telescoping covered walkways.

When not in use, the telescoping walkways will be folded back along the side of the building. When needed, they will be swung around on a line with the plane door, and positioned with hydraulic controls.

Deplaned passengers will be let out on the mezzanine of the concourse and will ascend a ramp to the second floor of the terminal building proper. Baggage will be trucked at ground level to the base of the finger, where a conveyor will lift it to the second-floor baggage-claim room. There, passengers will pick it up, descend to the first floor and leave through the main entrance.

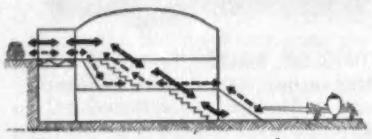
• Three-level system

A far more radical design than used for any of the other new terminals will be employed for the $4.5 million terminal building under construction at Lambert-St. Louis Municipal Airport. Taking advantage of a sloping site, the structure is laid out for a three-level system of operation. It also has an unusual roof.

Of reinforced concrete construction, the St. Louis terminal in the initial stage will be three stories high, 415x 123 ft, with two-story, 20-ft-wide fingers projecting out to airplane loading positions from the midpoint and ends. At the main entrance, ground level is two stories above field level.

The roof is of thin-shell concrete construction, consisting at present of three pairs of intersecting cylinders, each 120 ft in diameter. In the future, an equal number of intersecting cylinders may be added to roof an expansion of the building. Also, later on, fingers may be lengthened and possibly more built.

With each pair of cylinders supported at the four corners on concrete-encased steel columns, no interior columns are required in the third story. So the main entrance leads to a space 415 x 120 ft, with a maximum height of 32 ft, unobstructed by structural members.

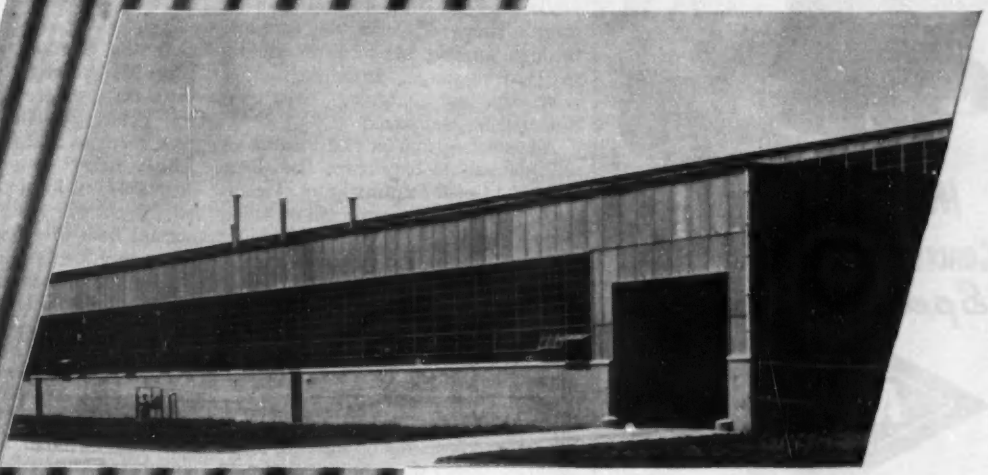


Outgoing passengers, as they come into the building, will find ticket counters on the right, under one pair of cylinders. On the left, under the central pair will be concessions and waiting space. Under the pair at the far left will be kitchen facilities, a restraurant, coffee shop and cocktail lounge.

After obtaining tickets and checking in baggage, passengers will descend to the second floor by moving stair and walk to one of the three finger ramps extending to airplane loading positions. Baggage will be transported by conveyors to the second floor. From there, trucks operating inside the building will cart the baggage down panel-heated ramps at either end of the structure to the planes. These vehicles will return by the same route

(*Continued on page 46*)

specify for ECONOMY



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Width	42"
Lengths	1' to 12' (in 6" increments)
Thickness	Approx. ⅜" at the crests and vales, ⅛" at flanks.
Pitch	4.2"
Weight	4 lbs. per sq. ft.
Color	Natural Cement Gray
Depth of Corrugation	1½"
Applications Specifications:	
Minimum Roof Slope	3" rise in 12"
Maximum purlin (roof) spacing	4'-6"
Maximum girt (side wall) spacing	5'-6"
Weight per net square, including side and end laps	Approx. 500 lbs.
Minimum side lap	1 corrugation (4.2")
Minimum end lap	8"

Refer to Sweets—AIA File 12-F

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. . . Future terminals can be better

to the baggage-claim counter with incoming baggage.

Incoming passengers will ascend on moving stairs to the second floor. At that level, they will enter the terminal building proper through a different door from that used by outgoing passengers, pick up their baggage and proceed to the third floor on moving stairs. They will leave the terminal through an exit between the dining and waiting areas. Intermingling of incoming and outgoing passengers thus will be minimized.

All construction on the third floor was planned to emphasize the shape and height of the unusual roof. Ticketing areas and concessions will be metal and glass islands with 7-ft ceiling height, for contrast with the 32-ft height of the curved roof. These spaces will have plastic ceilings. Floodlights to illuminate the underside of the roof will be placed atop the islands, as also will be most of the air-conditioning outlets.

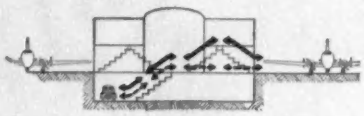
On the second floor, in addition to baggage rooms, there will be toilet facilities, barber shop, nursery and post office. Offices will line the field side. The second story will be air conditioned.

At field level, operation offices will line the entire field side of the building. Directly to their rear will be a drive for serving the fingers and for handling of air mail, air express, cargo and food catering to airplanes. Along the front of the building are areas for kitchen, air-mail and air-express operations and a loading dock for service vehicles, which will travel on a depressed drive screened from view from above by a metal grating. This drive will be bridged at third-floor level at the main entrance and exit.

A parking area at the level of the main entrance will accommodate 1,000 autos. Space is available for another parking lot with a capacity of 1,500 cars, but it is on the opposite side of the access highway leading to the airport and will require construction of an overpass.

• Looking ahead

An unusual variation of the two-level system was laid out for the terminal building proposed for the Los Angeles airport (which is not likely to be built in the near future because city voters refused to approve a bond issue to pay for it). The structure would have been circular, with six radial fingers projecting out, each to serve ten airplane loading positions. This arrangement, the designers believe, would minimize walking distances for passengers. Ticketing, baggage handling and concessions would be centrally located.



If the building is constructed as planned, passengers will arrive and leave via a service drive one story below grade. Moving stairs will transport them to and from the first floor, where ticket counters and baggage rooms will be located. From that level, passengers will walk up a ramp to the second floor of a finger, then down a ramp to a loading position. On upper floors will be administrative offices, restaurants, observation deck and lounges. Estimated cost of the building, with a domed roof, partly of glass, is close to $9 million.

• **Terminal design criticized**—While the new terminal buildings generally are better designed than the older ones, airport consultants are not entirely satisfied.

At most airports, passengers have long walks to and from planes. When the walkways are uncovered, the traveler is inconvenienced during inclement weather. Thus, there is a need for portable coverings between gate rooms and planes. Another needed improvement is elimination of excessive stairs and ramps.

For more efficient handling, baggage should be palletized, one consultant contends. That could speed operations so that incoming baggage would arrive in the baggage room before the passengers. When planes are loaded, he says, baggage having a common destination could be placed on the same pallet. On arrival, it could be unloaded by a vertical-lift truck or other hydraulic equipment, and transported into the terminal building on high-speed underground belts.

Some terminals also are criticized because they were laid out with emphasis on revenue-producing concessions. Passengers and visitors are compelled to walk long distances unnecessarily for maximum exposure to shops and display windows.

Apparently, at present, the nearest approach to an ideal solution is the one-level centralized design appropriate for terminals handling a relatively small number of passengers and served by only a few different airlines. Terminals being built for a large number of passengers and airlines still present some baffling problems.

flexibility in the new AERO Commander 560

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CATALOGUE

AERO DESIGN Commander 560

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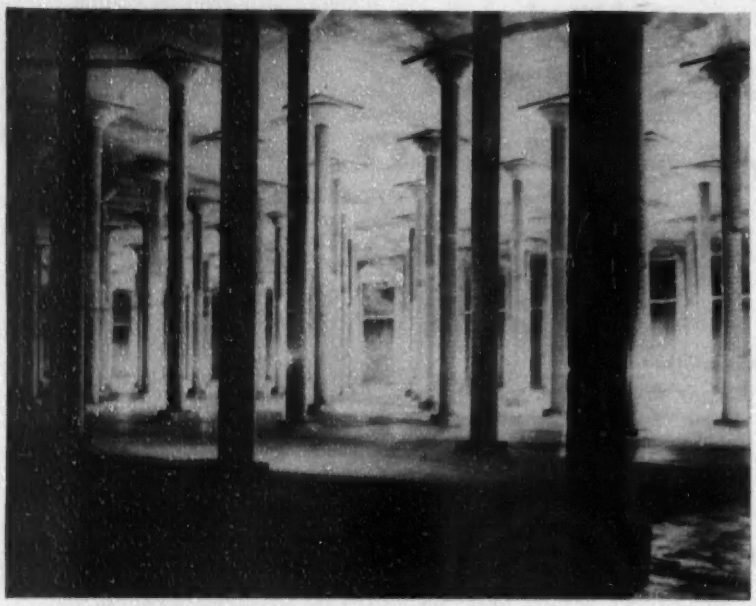


FLOOR SLAB of Omaha's new 25-million gallon reservoir was coated with silicone based cement paint and enabled contractor to pare $1,718 from the contract price.

Silicones Reduce Reservoir Leakage And Earn a Bonus for the Contractor

Before Omaha's new 25-million gallon water reservoir (ENR Sept. 24 1953, p.45) went into operation, preliminary tests had shown that leakage was somewhat above the 11 gpm set by specifications. Further, the subdrains rapidly acquired a thick coating of calcium carbonate; the same precipitate soon clogged the sump pumps and discharge lines.

• **The precipitate and the solution**—The original specifications read that the 6-in. floor slab be waterproofed with a ¾-in. coating of air-placed concrete. This was changed to a two-coat application of a silicone-base cement paint.

When the excessive seepage and precipitation was evidenced, it was first thought that the silicone protection was inadequate. However, careful study showed that the bulk of the escaping water was passing through the untreated slopes adjoining the sidewalls—the reservoir in section is an elongated octagon. The calcium carbonate was formed by action of the calcium bicarbonate found in Omaha water on alkali from the cement in these portions.

After the sub-drains and sump pumps were rinsed with dilute hydrochloric acid, two coats of the silicone paint were then applied to the sloping sections and the reservoir was tested again.

Under a test head of 35 ft of water, total leakage through the exterior subdrains was cut from more than 11 to less than 2½ gpm. According to John Detweiler, manager of water operations, this entitled the contractor to a bonus. Further, the contractor was able to pare $1,718 from the contract price through the substitution of the silicone compound for the air-placed concrete waterproofing.

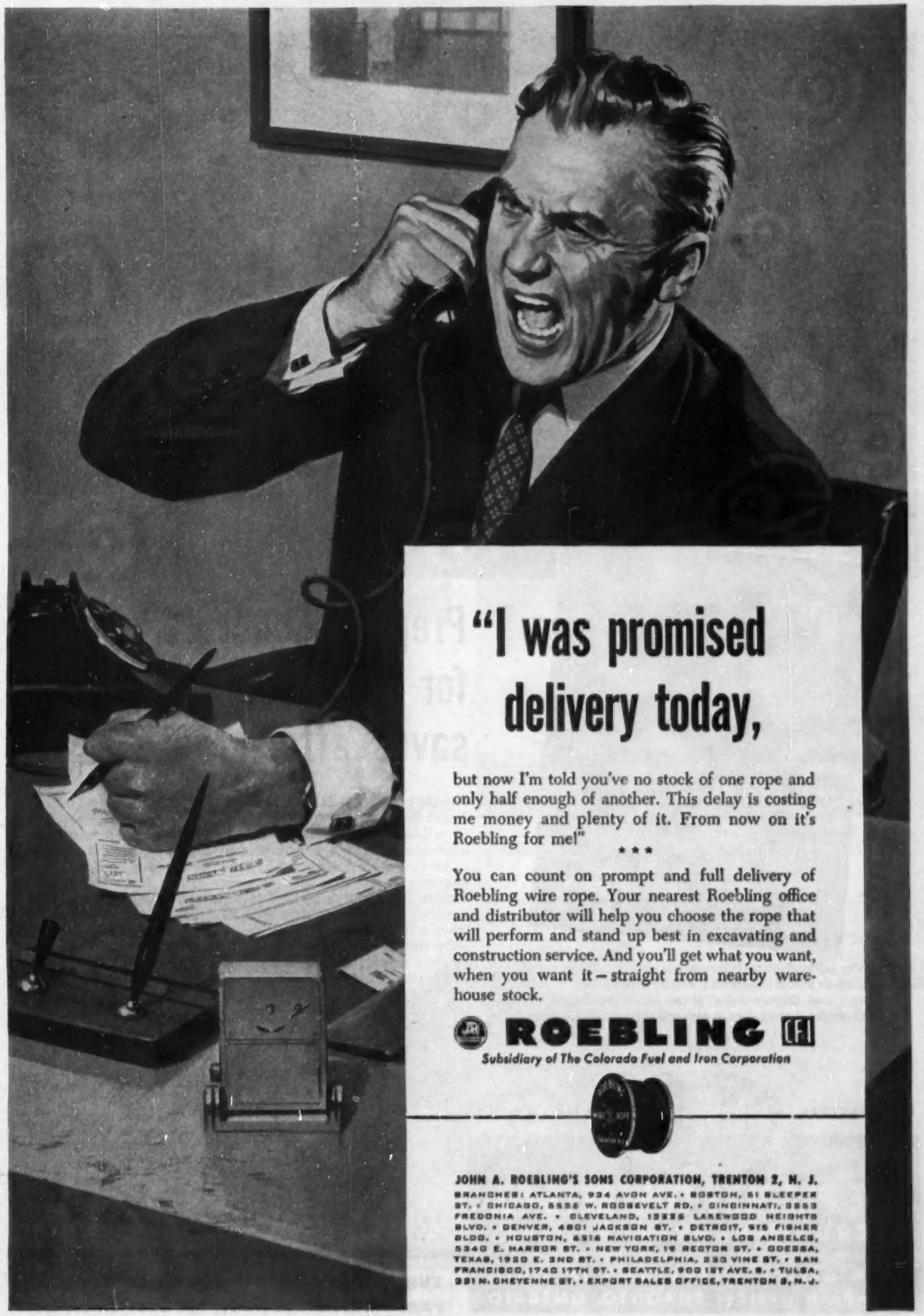
• **Roof slabs too**—A similar substitution in the specifications for waterproofing and curing the roof slab resulted in an additional $2,000 cut in the contract price. Originally called for was a coating of asphalt waterproofing, whitewash and a 3-in. layer of earth. The method that was used entailed alternate applications of wet burlap and the silicone paint.

According to the contractor, the change was advantageous since it permitted the use of poured sections for storing reinforcing steel, forms, etc. and as a roadway for the concrete buggies used. This was particularly vital on this job since the work area was restricted to a space measuring 600 x 350 ft in order that the golf course—under which the reservoir will be buried—could continue operations.

The reservoir was desiged by the Burns & McDonnell Engineering Co. and built by the Hagstrom Construction Co. The silicone-base cement paint, Silitex-S.F., was supplied by the Siliphane Corp. of America.

SILICONE based cement paint was applied to roof in lieu of a specified asphalt, whitewash and earth. This permitted the . . .

ROOF SLAB to be used as a roadway for concrete buggies and also for material storage in this highly confined work area.



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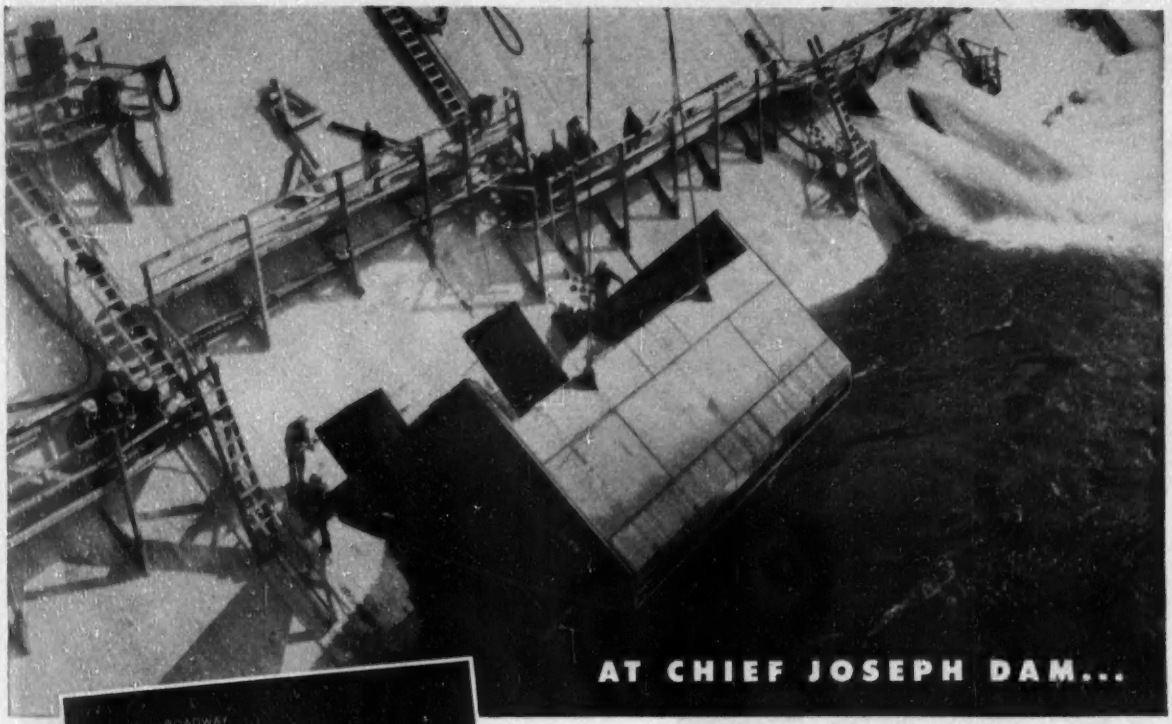

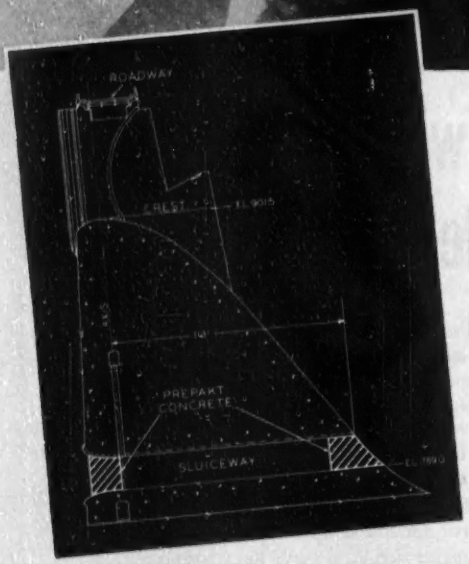

20-ton bulkhead (photo) is lowered into place at discharge end of sluiceways prior to installation of Prepakt Concrete plugs at Chief Joseph Dam. Diagram (below) of dam section shows location of well-bonded Prepakt plugs at each end of temporary sluiceway.

Engineers: Seattle District, Corps of Engineers, U. S. Army

Prepakt Concrete used for 24 sluiceway plugs saves after-grouting

Permanent plugging of 24 temporary sluiceways is being done by The Prepakt Concrete Co. at the new Chief Joseph Dam now nearing completion on the Columbia River, Washington. Use of Prepakt methods and materials is cutting costs and saving time by eliminating an extra operation.

Used for drainage purposes during construction of the dam, the 8' x 16' sluiceways are now being closed with some 4000 cu. yds. of Prepakt Concrete. This is made "in the form" by preplacing coarse aggregate, then completely filling all voids in the aggregate by pumping them full with Intrusion Mortar.

The resulting Prepakt Concrete forms a permanent plug having full peripheral contact and a tight bond with the existing concrete. It has no setting shrinkage, and 50% less drying shrinkage than conventional concrete. Temperature shrinkage is being reduced to a minimum by sub-cooling the aggregate with cold river water. As a result, no after grouting is needed with Prepakt Concrete.

This profitable application of Prepakt Concrete at one of the world's largest hydroelectric projects is typical of the savings possible with Prepakt methods and materials.

CONTRACTORS PREPAKT ENGINEERS

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If you would like to know more about the advantages and applications of Prepakt techniques for concrete construction, write or call The Prepakt Concrete Co., Room 779-U, Union Commerce Bldg., Cleveland, Ohio.

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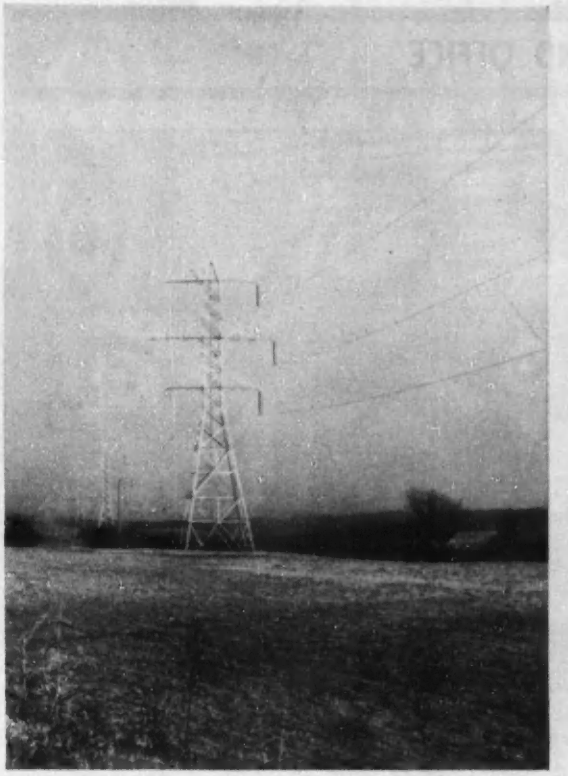
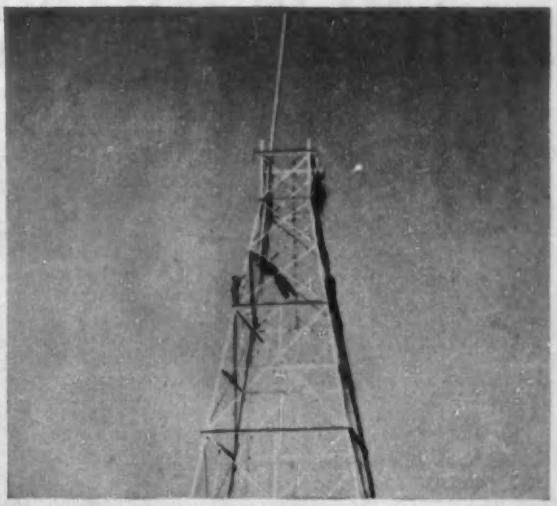




TOWER ERECTION was speeded with a lightweight gin pole while . . .

BIG EARTH AUGERS 48 and 54 in. in diameter went ahead for footing construction.

With the Right Tools—

75-mile Power Line Goes Up in 200 Days

A contractor—using the right tools—has completed construction of a $6 million 230-kv electrical transmission line with maximum speed, minimum labor.

It took just 200 working days to raise the 75-mile line which will permit Duke Power Co. of Charlotte, N. C., to transmit five times former capacity.

The contractor, R. H. Bouligny, Inc., of Charlotte, used every time-saving device he could find to speed the job.

- A specially developed truck for carrying cable-reels—sort of a mobile reel station—was used to pay off three cables at a time.
- Walkie-talkies for communication eased the task of wire stringing. Line crews progressed so fast they crowded the tower crews.
- A new 54-in. auger that can chew

(*Continued on page 52*)

SPECIALLY REBUILT TRUCK makes a mobile reel station for paying out cable to radio-equipped line crew miles away.

CABLE TRUCK has steel framework added. The contractor devised this special equipment so that the truck could haul three reels of wire from the storage yard to a wire-stringing location. There, it was possible to unreel wire directly from the truck—all three reels at once.

a 9-ft hole in hard ground at the rate of a foot a minute was brought on the job to help a 48-in. auger speed tower foundation construction.

• For tower erection, a lightweight aluminum gin pole (84 ft long, weighing only 600 lb) was designed with special working heads by Bouligny.

There are 441 towers, all told. Average span of the 1.1-in. dia conductors is 900 ft. The line is designed to carry the load of a half-inch thick coating of ice at zero degrees with an 8-lb wind. (This is heavier loading than the National Electric Safety Code specifies for the area.)

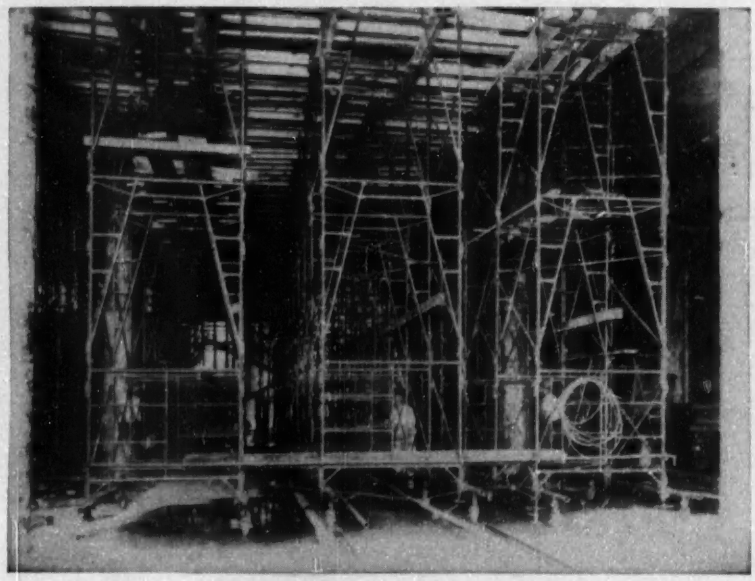
The 120-ft high towers are all steel. Tower legs fasten to stub angles which go down an average of 10 ft into a foundation where they are bolted to a grillage of steel.

These suspension type towers are equipped with 18 insulators and give a clearance of 9¼ ft between steel cross-arm and conductor.

The new transmission line will carry steam-generated power in large blocks from Duke's River Bend plant north of Charlotte for 75 miles across Piedmont County to Duncan, S. C., where it will connect with the existing Tiger station.

Power requirements in the Carolinas are growing. Duke Power Co.'s 20,000 sq mi territory consumed 4 billion kwh in 1945; 9 billion kwh in 1953.

The new 230-kv line was erected as a step in meeting demand which Duke Power Co. foresees as doubling in the next ten years. Further additions to facilities have been planned for the near future—most of them in the high voltage area.



THREE PARALLEL RUNS of scaffold-shoring units were tied together and mounted on casters to simplify placing of ceiling slabs. Channels guide the caster wheels.

Rolling Shores Cut Forming Costs

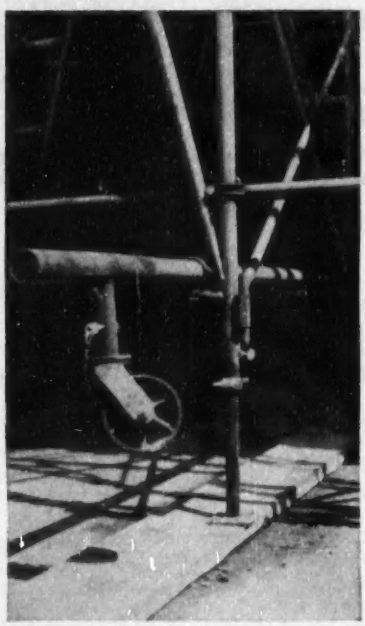
Installing casters on scaffold-shoring units is reported to have saved considerable time and money in placing the first floor ceiling slab over Western Electric's Distribution Center building in Pittsburgh. The shoring technique, developed by the Universal Mfg. Co. and used by the Mellon-Stuart Co., not only eliminated knocking down and re-erecting individual shores but also kept the forms intact and reusable: little rebuilding was required.

The mobile shoring units consisted of three parallel runs tied together with pipe and clamps to support a 25x50-ft form area. Columns in the building were spaced on 25-ft centers and topped with 8-ft sq, 7½-in. deep drop heads.

When the shoring units were rolled into place—steel channels aided in placing them—screw jacks raised the forms to the exact 22½-ft level as required. After the 8½-in. slab was poured, the shores were lowered 6 in. to rest on the casters, and the shoring units could then be rolled to the next pour. Stripping of the forms was facilitated by work platforms mounted on the upper panels.

Total weight on the shoring units when raised was 195,000 lb. The casters supported the 22,000-lb weight of the scaffold-shoring and forms.

A large factor in making this scaffold-shoring technique an economical one was the uniform height, width and length of the bays in the building. However, the scaffolding units can be partially dismantled, if required, to conform to irregularities.



SCREW JACKS were used to raise the scaffold-shoring units to the proper height.

18′ *of water lowered to rock*
by WELLPOINTS
on Ledyard Dam in Groton, Connecticut

Boulders piled on left came out of this core trench excavation!

Fred Onuparik, contractor of New London, Conn., made headline progress on this difficult job. His problem was to excavate to bedrock 20′ of material consisting of coarse sand, gravel, and boulders—plus 18′ of water.

It took only one week to install a Moretrench Wellpoint System in this rough ground.

Pumping started at twelve noon.

At 4 P.M. on the same day, the contractor had two 2½ yard shovels digging "in the dry".

EXCAVATION WAS COMPLETED SIX WEEKS AHEAD OF SCHEDULE!

When you want to move fast on a wet job, predrain it with a Moretrench Wellpoint System. Leading contractors have been proving for years that it saves time and money. Our catalogue pictures many types of dewatered construction projects. A copy is yours on request.

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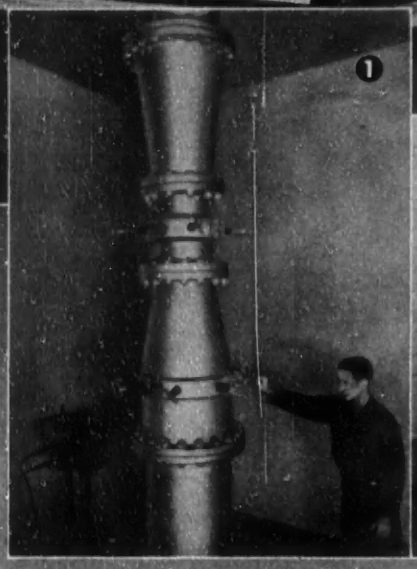
Mt. Vernon Sewage Plant

(Completed in 1953)

ALDEN E. STILSON & ASSOCIATES, Ltd.
Consulting Engineers
COLUMBUS, OHIO



1 Vertical installation of 20" x 10" Builders Venturi Tube on discharge side of raw sewage pump . . . Chronoflo Transmitter at lower left. Plant also uses a Builders Flo-Watch Venturi Meter for Sludge Measurement . . . and Omega Universal Feeders for alum, Ferri-floc, and hydrated lime.

2 Builders Chronoflo Electric Receiver for totalizing, indicating, and recording raw sewage flow. Instrument is conveniently located in control building lobby.

With the completion of this 3.3 MGD Sewage Plant by Mosser Construction, Inc. of Fremont, Ohio, Mt. Vernon has been able to abandon its obsolete and inadequate Imhoff-type plant. The treatment process includes primary treatment and pre-aeration, supplemented by chemical precipitation during Summer months. Sludge is disposed by separate digestion and by sludge drying beds.

The plant employs the latest in Builders Metering Equipment to promote uninterrupted and efficient plant operation. For details on Builders Equipment engineered specifically for sewage plant service, address Builders-Providence, Inc., Providence, Rhode Island.

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BIF METERS FEEDERS CONTROLS

Automobile Club of Southern Calif. photo

OCEANARIUM in southern California consists principally of steel tanks for fish.

Nelson Stud Welding photo

TANKS have continuous bands of windows cut into the walls at three levels. Window frames are anchored with studs welded to the tanks.

Quakeproof Tank

Ring girders form floors, provide seismic bracing in four-story oceanarium

Located in an area of high earthquake potential, a new $3.5 million oceanarium on Portugese Bend of the Palos Verdes peninsula, Southern California, incorporates a number of unique seismic design features.

The roofless, four-story structure, known as Marineland of the Pacific, consists principally of two large and several small steel water-filled tanks, a 1,500-seat amphitheater and a system of ramps. Since the structure is open at the top and all the tank walls are pierced for continuous windows, neither tank analysis nor building analysis was applicable.

Nelson Stud Welding photo

GRANDSTAND overlooking 80-ft dia fishbowl atop the structure, is reached by ramps.

• **Design decisions**—In selecting structural framing for the tanks, the designers considered the mass of the structural material, which affects the magnitude of seismic loading; the possibility of cracking, which might cause leaks; and the need for flexibility. They chose steel, with lightweight concrete floors at concourse levels.

For seismic loading, the designers applied the characteristics of the 1940 El Centro earthquake, the most severe ever recorded in this area and, for ground movement and accelerations, the most reliably reported. Two loading conditions were investigated: (1) dynamic impulses resulting from inertia forces on the water and (2) unequal hydrostatic forces at opposite sides of the tanks due to the undulating action of the water surface.

• **Girders do double duty**—This study led to a decision to surround the tanks with concrete ring girders that would serve a dual role—concourse floors for spectators and structural members transmitting lateral forces to shear-resisting members that will carry the forces to the foundation. The shear-resisting elements consist of 32 radial, 3-story-high, steel rigid frames surrounding the tanks. Because of poor foundation conditions, the frames are founded on a 4½-ft-thick, continuous concrete mat on compacted fill.

The amphitheater on the fourth floor overlooks a circular tank, 80 ft in dia and 22 ft deep, containing marine life native to the Pacific Ocean. Nearby is an oval tank, 100 ft long, 50 ft wide and 22 ft deep.

Continuous windows surround both tanks at three levels. Glazing consists of two thicknesses of ⅜-in. glass capable of withstanding high pressures. Window frames are anchored with studs that were welded to the tanks.

Pereira and Luckman, architects-engineers, Los Angeles, designed the oceanarium. George A. Fuller Co. was the general contractor. Bethlehem Steel Co. erected the structural steel, and Pacific Iron & Steel Works, in conjunction with National Tank Corp., fabricated and erected the steel tanks.

Thin Arches, Shells Give Light, Clearance

Building a printing plant roof with a clear span of 125 ft and doing the job with a minimum amount of materials has resulted in a unique roof framing job in London, England. The roof problem was posed by the needs of the Bank of England's new printing works main production hall. Not only was a clear span of 125 ft across the hall needed, but the vast room had to be well daylighted for detail work in the plant, and if an arch were used there had to be a certain amount of vertical height from the floor to the spring line of the arches. This last stipulation in the design problem was made to meet the need for "security" galleries along the edge of the main production hall in order that the bank's printing operations here could be watched at all times.

Designers of the big printing plant came up with a roof arch with an asymmetrical slope, sharp curvature near the galleries, and almost vertical sides. The curve of arch follows a quartic equation, the main axis of which is actually 5 ft below the main floor shown in the above picture.

To avoid great dead loads, which would have been involved if these relatively flat arches were built of reinforced concerte, prestressing was used. The arches themselves are only 9 in. wide and they are placed in pairs 3 ft 6 in. apart. Eleven pairs of these arches, each pair set 36 ft apart, made up the length of the main hall.

Set between the pairs of arches are 36-ft-long half-barrel arches, cast in place, arranged around the curve of the roof in six bays, each of which provides north light for the height and length of the bay.

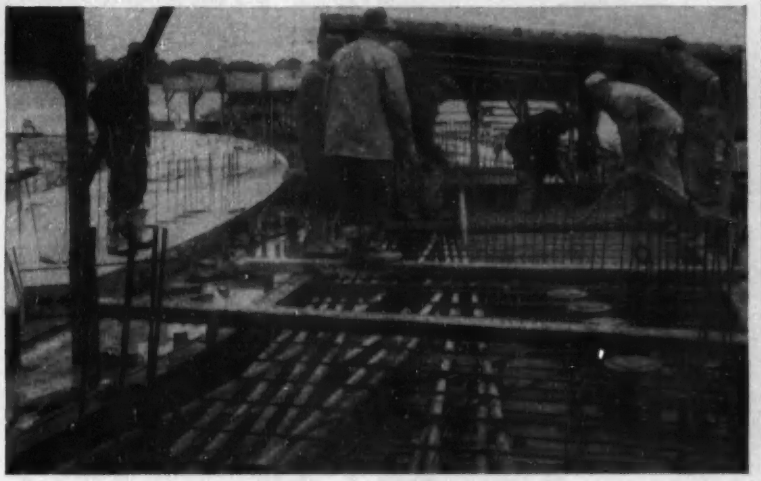
Begun in 1953, the $5.6-million plant includes administrative offices, vaults, laboratories and ancillary service units. The main building is 800 ft ft long with a maximum width of about 300 ft. A second building, with cafeteria, recreation and committee rooms, is separated from the main building but connected by a subway. Total floor space will be about 443,000 sq ft.

To take advantage of the sloping site, the main building is on two levels: the upper ground floor being taken up with the main production hall, a smaller production area, and a general printing hall. Roofs of the first two areas are framed alike, but the roof of the general printing hall is of double cantilever construction extending out from centrally located columns.

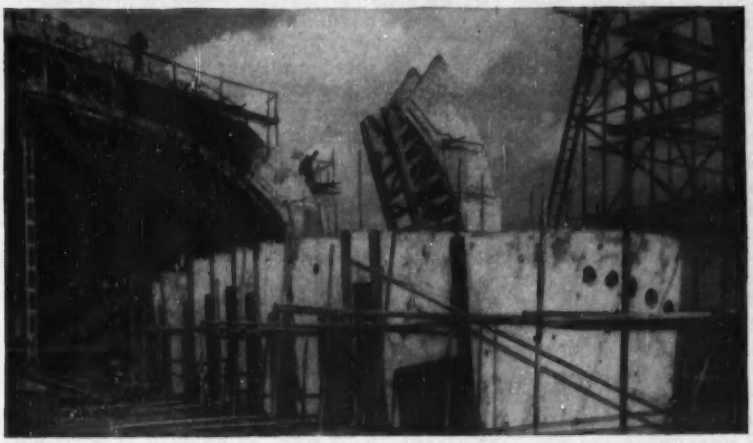
• **Arches by assembly line**—The long crown of each of the main arches was precast flat on the ground in eleven rectangular-shaped sections in a master set of forms. These forms were used for every arch to assure exact size and fit. Haunches of the 9-in.-wide arches were cast in place.

A traveling steel-framed falsework rig, placed across the width of the main hall on rails, served to place the precast arch sections in their final position. The falsework had jacks built into it to raise the arch sections to exact elevation. Prestressing ducts had been cast accurately into the precast sections, and after the prestressing cables had been threaded, joints between the arch sections, were dry-

(*Continued on page 58*)

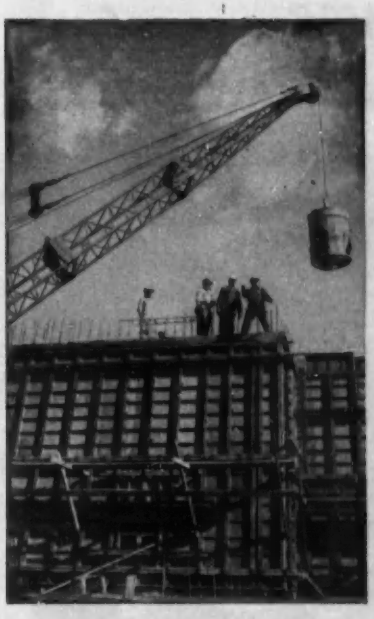


FORMS, on ground, for the precast arches maintain exact size for the carefully planned sections of the arch and the positioning of prestressing cable ducts.



PRECAST SECTIONS of the roof arches are lined up in order to be placed by crane on falsework. Haunches for the arch (background) are cast in place for the job.

PRINTING HALL ROOF is made of beams cantilevered out on either side from centrally placed columns. Beams are cast in place, half-barrels for roof precast.



Only 3 Walers
Used with Symons Forms
On 16′ High Wall

Henry Carlson Construction Company, Sioux Falls, South Dakota, used only 3 walers with Symons Forms on 16′ high 12″ thick wall for City Water Treatment Plant, Sioux Falls. 10,000 square feet of Symons Panels were reused 12 times on the job, resulting in considerable saving of labor, material and a fast forming schedule.

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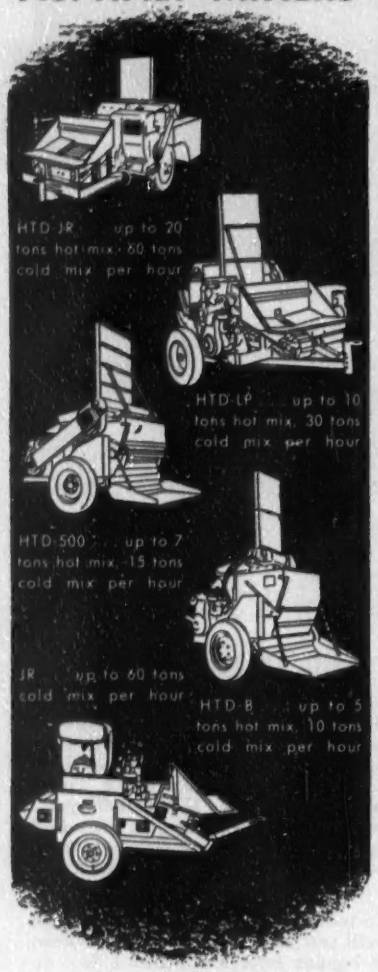
HTD-JR ... up to 20 tons hot mix, 60 tons cold mix per hour
HTD-LP ... up to 10 tons hot mix, 30 tons cold mix per hour
HTD-500 ... up to 7 tons hot mix, 15 tons cold mix per hour
JR ... up to 60 tons cold mix per hour
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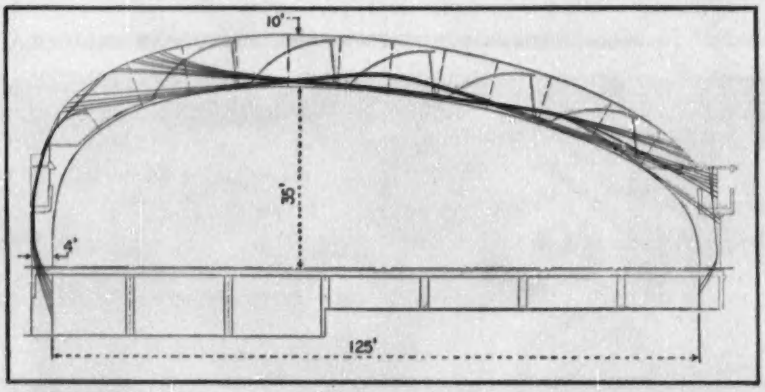

PRESTRESSING CABLES (heavy lines) in the flat arches of the main hall are made up of twelve 0.2-in. dia wires. Roof barrels are set between precast arches.

packed. There are 12 cables arranged through the crown of each arch, two cables used in the short haunch on one side of the hall and five cables used in the taller haunch on the other side of the hall. Each cable is made up of twelve 0.2-in. dia wires. The Freyssinnet system of prestressing was used in arches.

Actual tensioning of the cables in the crown of the arch was carried out in two steps: First, while the falsework still carries the dead load half of the cables were stressed, then, second, the falsework was lowered and the balance of the cables prestressed. This method avoided the possibility of too much compression being induced in the bottom of the arch at the crown while the falsework was still carrying most of the dead load. Note positions of prestressing cables in drawing above.

• **Hinged forms for barrels**—The steel falsework used for erecting the pairs of main arches also was being worked at the same time to form the half-barrel roof shells which make up the actual roof deck. While an arch was being formed at either end of the falsework rig, the 36-ft-long thin-shells between them were being formed. Curved forms fastened between the arches by bolts were used for the shells. These forms could be raised into position and for stripping were simply pulled down on their frames to rest in the falsework. The tensioning of prestressing cables in the main arches is carried out during and after striking the barrel forms in the sequence indicated above. A pair of arches and the intervening barrels forming the roof were erected, formed and stripped at a rate of one section every week.

The floor of the main hall is heavily reinforced to act as a tie between legs of the main arches. Mechanical equipment is carried in the 3-ft 6-in. space between the main arches.

• **Barrels on cantilevers**—Like the main production hall, the general printing hall roof incorporates half-barrels and north skylights, but they are placed between 94-ft-long beams cantilevered out from centrally placed columns. Reason for the cantilever construction was the necessity of expansion joints on either side of the structure. A balanced cantilever with a clear break between this roof and adjoining areas was decided on. Four free-standing bays, each made up of four cantilever beams on 24-ft centers spanned by the north light half-barrels, made up the roof. Total length of the building is about 290 ft.

Construction procedure for this hall was reversed from that followed in the main hall: The barrels were precast—because of their small size—and the beams were formed in place. The cantilever beams are 7 ft deep and 9 in. and 6 in. thick, and prestressed by the Gifford-Udall-CCI system in which wires were laid up singly in layers and anchored by metal plates in the beams.

Prestressing wires in the cantilever beams are placed in 12 layers, each layer of wires being longer than the layer beneath it. The wires are all exposed during construction. Before the beams were stressed the precast shells were placed on them (the whole structure still being supported on falsework), joints dry-packed and the whole roof stressed transversely. There are six prestressing wires per shell, and the length of the beam takes in eight shells.

Then the cantilever beams themselves were prestressed, the tensioning being carried out starting with the bottom layer of wires and working up. During the stressing operations the beams were loaded in two stages. A first load was applied to the end of the beams so that concrete on the top flange would not be over-compressed.

(Continued on page 60)

SHOVEL-CRANE REPORT ON THE OHIO TURNPIKE

Sub-contractor Al Johnson Construction Co., Minneapolis, Minnesota, uses a 30-ton Lorain Moto-Crane, model MC-524, on their contract to dig footings for the 154 ft. Black River Bridge in Elyria. All in all, they have purchased seven Lorains.

MORE THAN 50 LORAINS SO FAR

ON *ALL* PHASES OF CONSTRUCTION

A Lorain took the first bite of earth at the ground-breaking ceremonies for the Ohio Turnpike. Since then, more than 50 additional Lorains have gone to work to rush completion of this vast 241-mile superhighway by October, 1955. Lorains of all sizes and types—shovels, cranes, clamshells, draglines, hoes—on rubber-tires and crawlers (up to 61 tons capacity)—are fitting the needs of a long list of big-name contractors on this big job. In the rubber-tire class alone, Lorain Moto-Cranes outnumber all other makes combined.

Your jobs may not be Turnpikes, but you, too, can profit by the same Lorain advantages so well known to men that must beat the *big* deadlines at a profit. See your nearby Thew-Lorain Distributor now . . . learn all the reasons why a Lorain is your best buy.

▲ More than 25 rubber-tire Lorain Moto-Cranes speed up and down the right-of-way to get work done. Sub-contractor Vogt & Conant, Cleveland, Ohio, 10-time Lorain owner, uses a 20-ton Lorain Moto-Crane to set 15-ton, 60 ft. long steel girders for this overpass. In the background, a 22½-ton, model MC-424 Moto-Crane, owned by Peter Kiewit Sons Co., uses a 1-yd. concrete bucket to pour abutments. Kiewit has purchased 36 Lorains.

A Lorain-820 Shovel, equipped with 2½-yd. dipper, is shown below digging a rock cut on another section of the Ohio Turnpike. ▼

◀ A Lorain crawler dragline handles ditch excavation as part of important drainage construction along 241-mile road.

Harrison Construction Co., Pittsburgh, Pennsylvania, have purchased a total of 55 Lorains. Below, one of their 1-yd. Lorain-50 Hoes digs a trench for a 36" corrugated cross-drain on one of their three contracts that total $9 million. ▼

OHIO TURNPIKE FACTS AND FIGURES

Estimated quantities:

Earth and rock excavation	29,500,000 cu. yd.
Fill or borrow	46,900,000 cu. yd.
Pavement concrete	7,860,000 sq. yd.
Bituminous shoulder surfacing	5,200,000 sq. yd.
Concrete in structures	582,000 cu. yd.
Steel	171,000 tons

STRUCTURES:

Bridges, drainage, overpasses, etc.	612

THE THEW SHOVEL CO.
Lorain, Ohio

THEW LORAIN

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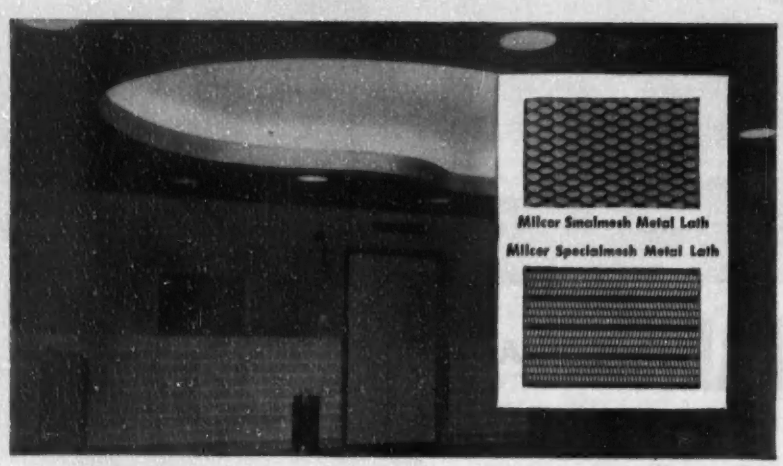
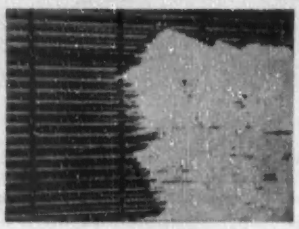
provide the advantages of fire-safety, permanence, lasting beauty

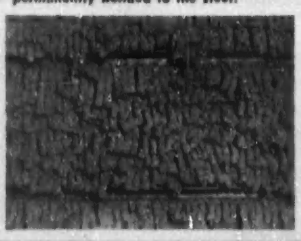


Indirect Lighting Trough, Misericordia Hospital, Milwaukee, Wisconsin



Above: The scratch coat is forced through Milcor Metal Lath so that it is keyed on both sides of the steel reinforcing.

Below: Note how the back surface of plaster on Milcor Metal Lath becomes permanently bonded to the steel.



Steel-reinforced plaster faithfully expresses modern conceptions of interior design

Today, there's a renewed appreciation of plaster interiors — and an increased demand for them.

On the drafting board, Milcor Metal Lath and plaster give you unlimited freedom to develop structural forms and shapes.

On the job, Milcor Metal Lath and plaster provide maximum rigidity with light weight. The whole wall and ceiling is held together in one fire-resistant, monolithic slab, free from warping, and shrinking tendencies.

Write today for the Milcor Manual.

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INLAND STEEL PRODUCTS COMPANY

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BALTIMORE 5, MD., 5300 Pulaski Highway — BUFFALO 11, N. Y., 64 Rapin St. — CHICAGO 9, ILL., 4301 S. Western Blvd.—CINCINNATI 25, OHIO, 3240 Spring Grove Ave. —CLEVELAND 14, OHIO, 1541 E. 38th St.—DETROIT 2, MICH., 690 Amsterdam Ave.— KANSAS CITY 41, MO., P. O. Box 918—LOS ANGELES 58, CALIF., 4807 E. 49th St. —NEW YORK 17, N. Y., 230 Park Ave. — ST. LOUIS 10, MO., 4215 Clayton Ave.

(Wires at the top of the beam were not concreted in until after stressing, and only concrete on the sides of the beam could take the compression.) A second load was then imposed on the ends of the beam after the wires had been stressed but not yet concreted in. This deflected the beam ends so that the uncompressed concrete placed around the prestressing wires also would be prestressed upon removal of this load. This system avoided differential movement between original concrete in the beam and the protective concrete around the wires.

Architects for the plant are Easton and Robertson, consulting engineers are Ove Arup and Partners, and Sir Robert McAlpine and Sons, Ltd., are the contractors, all of London, England.

Hydro Plans

Lebanon's Litani River project seeks bids for engineering services

U. S. consulting engineers are invited to submit applications to bid on the first stage of the Litani project in Lebanon.

The national office of the Litani, Rue de Damas, Beirut, Lebanon, has announced that it will accept until the 30th of November 1954, applications for admission to bids to prepare detailed plans and specifications covering the construction under the first stage of the Litani project. The selected firm also will supervise the work.

First stage plans involve:

- Tunnels—an 8-ft dia tunnel, 2,500 ft long, an 8-ft dia tunnel 3,000 ft long.
- Dams—a dam 148 ft high and 3,300 ft long, type to be determined later.
- Power plants—a hydroelectric power plant consisting of two units of 6,000 kw capacity each. A hydroelectric power plant of 39,000 kw consisting of three units of 13,000 kw capacity each.
- Irrigation canals—canals to have a total length of approximately 75 miles.
- Transmission—69 kv lines approximately 75 mi total length.

Firms wishing to participate in this bid will have to submit with their application reports of similar works they have designed and supervised including, preferably, a contract of the kind used in their own country for engineering services.

Selected firms will be requested to submit a price based on the condi-

(Continued on page 62)

Reports from Users

TEXAS ALUMINUM PLANT

"We compacted 380,000 cu. yds. of clay fill to 95% with twenty Rammers in six months. No other equipment would produce required compaction and only the Barco Rammer permitted us to finish the job on schedule."—*Consolidated Western Steel Division, Port Lavaca, Texas.*

CALIFORNIA PROJECT

"We had an occasion to compare the Rammer along with two other machines and it was surprising how much more material the Barco Rammer would handle."—*Westway Excavating Co., West Los Angeles, Calif.*

MIDWEST WATER LINE

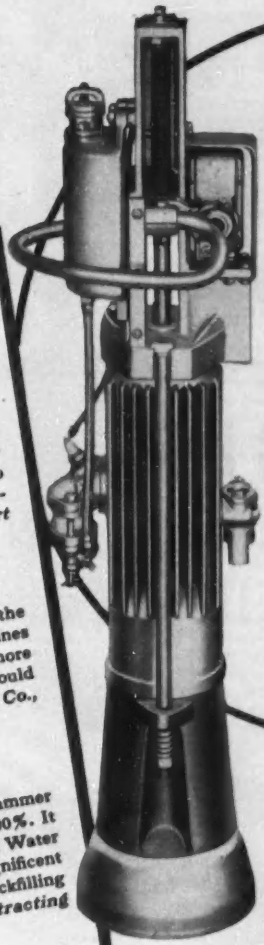
"The Barco Portable Gasoline Rammer has fulfilled our expectations 100%. It is now in use on a 32,000 foot Water Line Project and is doing a magnificent job in keeping up with our backfilling requirements."—*Jones Contracting Co., Detroit, Mich.*

HOUSING PROJECTS

"Soil compaction with the Barco Rammer has been the key to earlier completions and lower costs for us."—*Paul Schleicher & Sons, Gary, Ind.*

OHIO TURNPIKE

"Exceptional time and labor is saved in the speed of the Barco Rammer with comparison to our previous method . . . We found it difficult to meet the rigid specifications required by the Ohio Turnpike Commission until we instituted the Barco Rammer, and can recommend it very highly to any organization having to meet specifications."—*Angell Construction Co., East Lansing, Mich.*



WHEN YOU'RE UP AGAINST A TIGHT SCHEDULE—

ONE of the most important advantages users get with Barco Rammers for *soil compaction* is ability to handle big jobs in minimum time. When time is at a premium, BARCO PERFORMANCE PAYS DIVIDENDS!

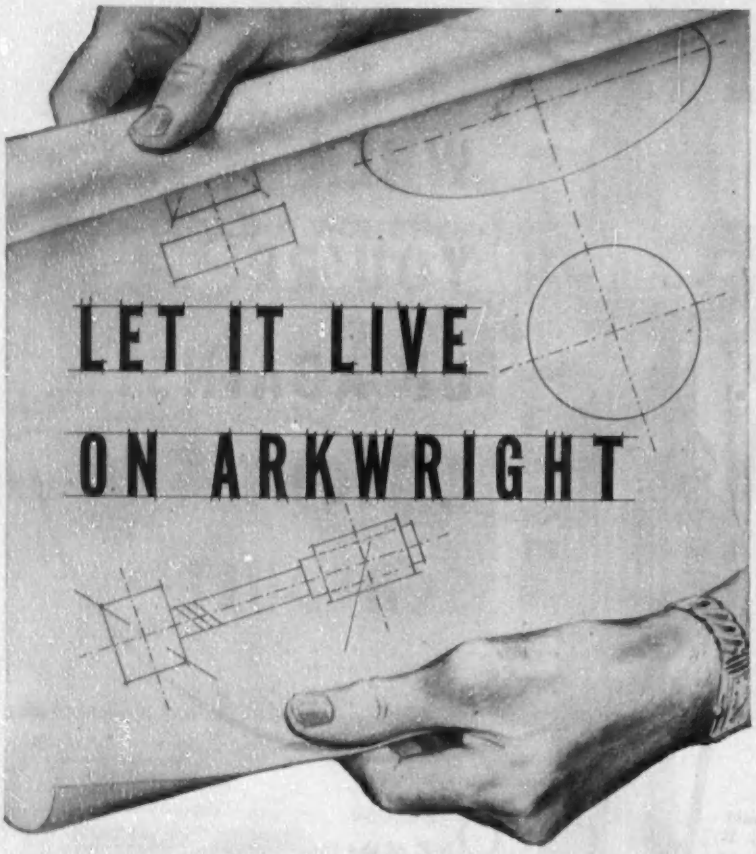
Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE. The Barco Rammer is a completely self-contained unit; no auxiliary or extra equipment is required. On area tamping, where specifications call for 95% to 97.5% (modified Proctor) compaction, one man can average 20 to 30 cubic yards of fill per hour, day after day.

If you are not already using the Barco Rammer for soil compaction work, find out about it now! *Worldwide Sales and Service.* BARCO MANUFACTURING COMPANY, 5148 Hough St., Barrington, Ill.

This photograph shows a Barco Rammer working on the Trenton Freeway in New Jersey.

BARCO RAMMER

For Soil Compaction Close to Walls, Culverts, and Abutments—in Trenches, Ditches



The New, Improved Arkwright Tracing Cloths provide a greater transparency and a finer finish.

Longer life and sharper prints are the results of Arkwright's increased transparency.

"Blobbing" and "Feathering" eliminated. Arkwright's finer finish gives an unequaled working surface, which withstands an endless amount of erasing and still delivers concise, clear lines.

Make it a habit to use Arkwright all of the time. You can never tell when a "preliminary" will be urgently needed at a later date.

Write for a free sample. See why, throughout America, more Arkwright made tracing cloth is sold than all other domestic makes combined. Look for the rolls with the blue line that identifies "America's Standard". Arkwright Finishing Co., Industrial Trust Building, Providence, Rhode Island.

ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 33 YEARS

INTERNATIONAL

tions of a model contract which will be submitted to them. This price will have to be in the form of a percentage, or a lump sum.

Development plan for the Litani works is available at the Litani offices.

Copies of the complete announcement may be obtained from the Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C.

Prestressed Concrete Bridge Sets New Record for Canada

What is reported to be the longest prestressed concrete bridge in Canada will be built across the Chin Reservoir site near Taber, Alberta, as part of the St. Mary Milk Rivers Development.

The bridge is a 1,500-ft-long deck type structure with a 30-ft roadway. The deck will rise about 45 ft above the bottom of the coulee, which will have over 35 ft of water in it at full supply level.

The design consists of twenty-five 60-ft prestressed precast concrete girder spans on reinforced concrete rigid frame substructure units. Spans will have a cast-in-place concrete deck and precast concrete handrail and posts.

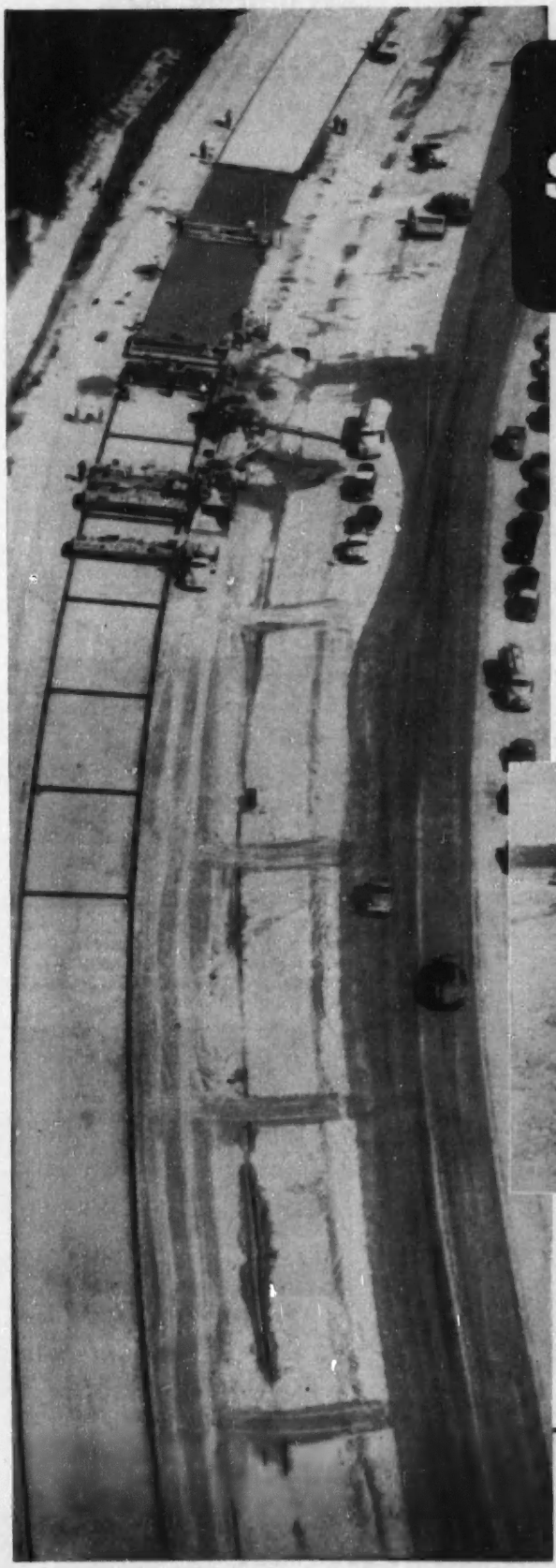
Since Chin Dam will start backing water into Chin Coulee by next summer, the $687,000 bridge project is scheduled for completion by June, 1955.

General Construction Co., Ltd., of Lethbridge, Alberta, has been awarded the contract for the job. The precast and prestressed work has been sublet to Precast Concrete, Ltd., Calgary. Structural Engineering Service, Ltd., of Calgary and Edmonton, designed the structure.

International briefs . . .

• **Public works priorities**—Because of increasing unemployment in some of its industries, Ontario has appointed an economist to study $600 million in public works projects planned for this fiscal year. Purpose of the study: to stimulate employment in all parts of the province and to set up a system of priorities in public works.

• **Progress report**—The third—and last—stage of the dredging of the Maracaibo Bar in Venezuela is slated to start in November. The $11-million job involves dredging the outer channel, which will be about 7.1 mi long, and 1,115 ft wide. Total volume to be dredged is estimated at some 18,530,000 cu meters.



Ohio Turnpike Shapes Up with Heltzel Forms

An air passenger crossing northern Ohio will clearly see the Ohio Turnpike taking shape. If he looks closer he'll note the paving operation is underway in several locations. Ahead of the paving crew he'll see long lines of steel forms set in readiness to shape sections of the 261 mile thruway.

If he were to visit these paving operations he would note, further, that a great pecentage of these steel forms was made by Heltzel. There are several reasons for this wide preference, among leading construction firms, for Heltzel Steel Forms. First, they know that a Heltzel Form has more than 40 years' experience built into it. Experience that enables Heltzel to construct a form that will set fast and easy, align perfectly and carry the paving spread without vibration or a failure. Secondly, they know that Heltzel means service. Heltzel engineers are constantly working the turnpike, making certain their product is doing the job. Thirdly, these people know that Heltzel builds the most complete line of form equipment available today . . . that many more desirable features are found only in Heltzel Forms . . . that they can rely on a single source for all their form needs.

Isn't it just good business, then, when next you're considering forms to contact the Heltzel representative nearest you and find out why so many of the nations' leading construction firms specify Heltzel Forms right down the line?

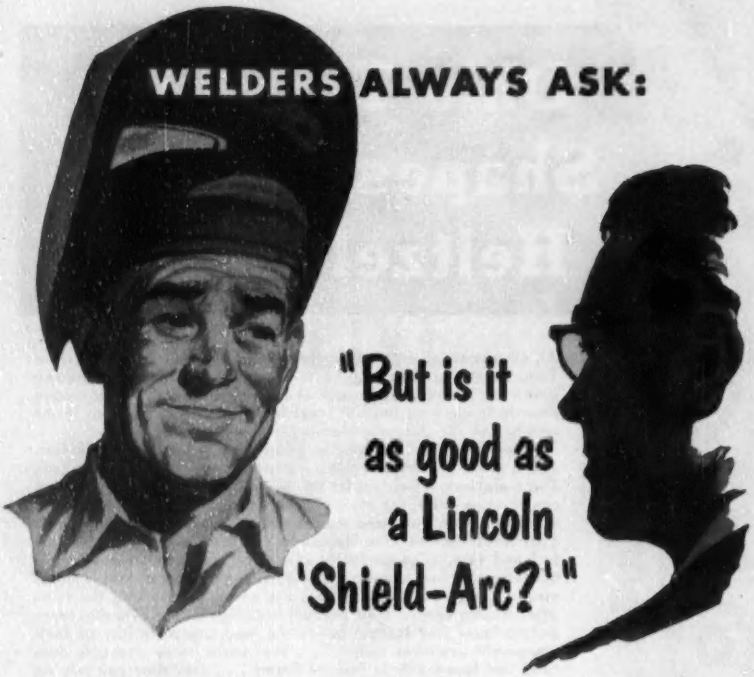
Photos show Heltzel Forms in use on Ohio Turnpike Sections C-25 and C-26 by Western Contracting Co.

HELTZEL

STEEL FORMS

THE HELTZEL STEEL FORM AND IRON COMPANY

10000 THOMAS ROAD • WARREN, OHIO



SPEEDS CONSTRUCTION CUTS COSTS

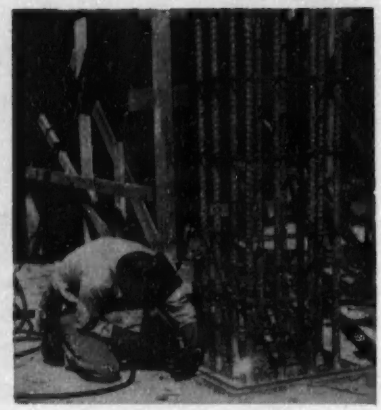


Fig. 1. Saves $18,000 *welding column bars at Peninsula Hospital, Burlingame, California. Eliminates 21 pounds of steel per joint, floor area increased.*

Fig. 2. Cuts Steel Costs 15% *on 1700 ton multi-story framework. Continuous beams pass over columns and are welded at point of minimum stress rather than at column.*

Fig. 3. Speeds Erection *on 575 ton frame addition to St. Vincent's Hospital. Structural members are held together with clip angles, bolted and guyed, then field welded.*

HERE'S WHY the Lincoln "Shield-Arc" welder is *the standard of comparison* for arc welders:

1. "Shield-Arc" delivers *any* type of direct current arc . . . not one or two types.
2. "Shield-Arc" delivers dependable peak performance day after day . . . at lowest cost.
3. "Shield-Arc" welders are constantly improved to weld faster . . . at lower and lower costs.

LINCOLN "SHIELD-ARC" SA-200 DC

Engine driven welder. "Shield-Arc" is built in 200, 300, 400, 600 amp sizes, portable or stationary.

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Dept. 2309

CLEVELAND 17, OHIO

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

"Flying Office" Cruises at 200 mph

Said to be the fastest airplane—with the longest range—in the standard six-place executive aircraft field, the new Beechcraft Model C50 Twin-Bonanza offers something new for the construction man on the go. Cruising speed at ¾ power is 200 mph, range is 1,100 mi.

Outwardly the new model resembles the 1954 Twin, but 275-hp Lycoming engines provide 15% more power. In addition a new propeller design is said to offer simpler, more effective control. Similarly, the radio panel has been redesigned to place controls within easy reach of the pilot for easier use.

Passenger comfort has been improved through revamping of cabin heat controls to permit operation of the blower and automatic control system when the 50,000 Btu heating system is turned off.

Optional safety features that may be factory installed include: rotating navigation warning light; a new propeller anti-icer system; engine pre-heating system; nose taxi light; and evaporative air conditioner.

Maximum rate of climb for the new Bonanza is 1,450 fpm at sea level—300 rpm with one engine. Minimum take-off distance required is 905 ft and 645 ft is required for landing. Service ceiling with both engines is 20,000 ft.

The C50 weighs 3,960 lb with residual fuel and average radio and will carry 1,020 lbs of payload.

According to the company, the Twin Bonanza has been engineered for safety, its low-wing design permitting 65% of the weight of the plane to be located below and forward of the passengers. The airplane is designed for a flight load up to an 8G safety factor, considerably higher than the 5.7G ultimate factor required by Civil Air Regulations. BEECH AIRCRAFT CORP., WICHITA, KAN.

Portable Barrier Is Compact, Permits Flexible Enclosures

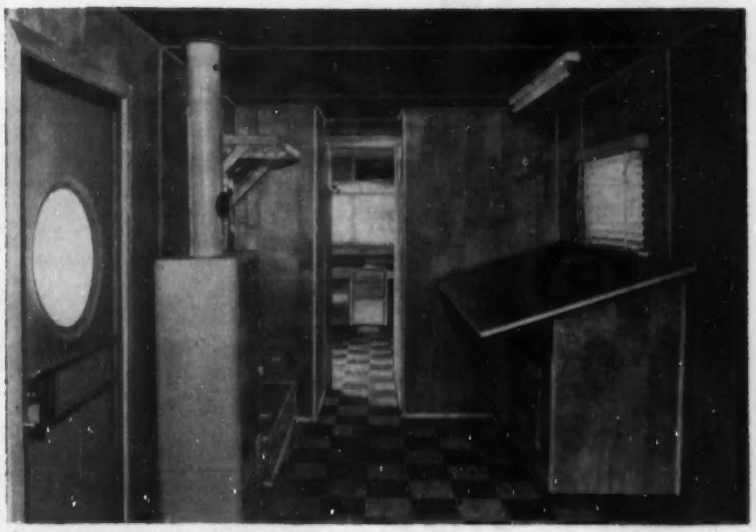
A new portable barrier has been designed for easy transportation and handling.

Known as the Safe-T-Bar, the new barrier consists of three basic units: a hinged sign frame, a folding A-leg assembly and an adjustable-height single leg. These can be put together in any desired combination for single barricades, continuous barriers of any length, or enclosure barricades around manholes or excavations. Joints between sign frame units are articulated so that barrier can follow irregular lines; adjustable height single legs will accommodate uneven terrain.

The A-leg and head assembly, used to support one or both ends of the sign frame, has a cadmium-plated head assembly with sockets at each side to hold the sign frame brackets. A 1-in. dia center socket is provided for flag or other warning device. The complete A-leg assembly folds to 2 x 2 x 38½ in. and weighs less than 8 lbs.

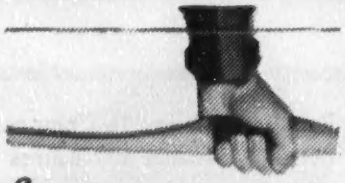
The sign frame assembly has an angle-iron frame that will take ¼ in. plywood, metal or hardboard signs that are secured to the frame by welded-on clips at the bottom and cotter pins at the top for easy removal of the panel. Hinged brackets at each

(*Continued on page 66*)



Trailer Has Several Applications

A new office-utility trailer, called the Smithco, is designed to provide a low-cost, multi-purpose unit that can be used as an office and/or a parts room or other combinations. The 21-ft trailer is custom-built and therefore can be adapted to the specific needs of the owner. It is suitable for a field office, parts and tool room, portable machine shop, field laboratory, etc. L. B. Smith, Inc., Camp Hill, Pa.



for greater accuracy

VENUS...
the drawing pencil preferred by professionals

sharper, cleaner lines
...because the lead is homogenized by the exclusive Venus Colloidal Process.* The result: a lead that's uniformly smooth from top to bottom to give perfect drawings or tracings—no smudging, easily erased.

holds point longer
...because Pressure-Proofing* seals lead to the wood along the pencil's entire length. That's why Venus drawing pencils are stronger . . . hold a needle point longer.

accurately graded
...thanks to grading by hand. That's why Venus, in all 17 degrees of hardness, gives engineers the consistent grading they need.
Ask for Venus drawing pencils at your bookstore.

*Exclusive Venus patent

VENUS
drawing pencils
with the green crackled finish

Send for helpful, illustrated instruction brochure "Sketching with Venus Pencils," only 25c and get a FREE Venus Drawing Pencil.

American Pencil Co. Dept. ENR 11-18-54
Hoboken, N. J.

Enclosed is 25c for "Sketching with Venus"—and my free Venus Drawing Pencil. Degree I want is ( ).

Name.....

Address.....

City..... State.....

end of the frame slip into sockets on the legheads to permit the sign to swing in the wind. Standard sign sizes are 18 x 18 in., 12 x 36 in., 24 x 24 in. and 12 x 48 in.; special sizes are also available.

The adjustable-height single-leg assembly consists of head similar to the A-leg assembly but with a telescoping tubular leg with holes 2 in. apart. Height can be adjusted from 28 to 36 in. The single leg can be used on one end of single barriers, at intermediate points on running barriers and corners of enclosure barricades.

Compactness is a principal feature. A complete barrier set-up for a typical utility truck, consisting of a four-sided enclosure barrier and two single barricades, requires 10 x 12 x 48 in. of truck space.

The barriers are available on either sale or rental basis. BARMOTIVE PRODUCTS, INC., 440 PERALTA AVE., SAN LEANDRO, CALIF.

Subsoiler Converts to Cable Layer

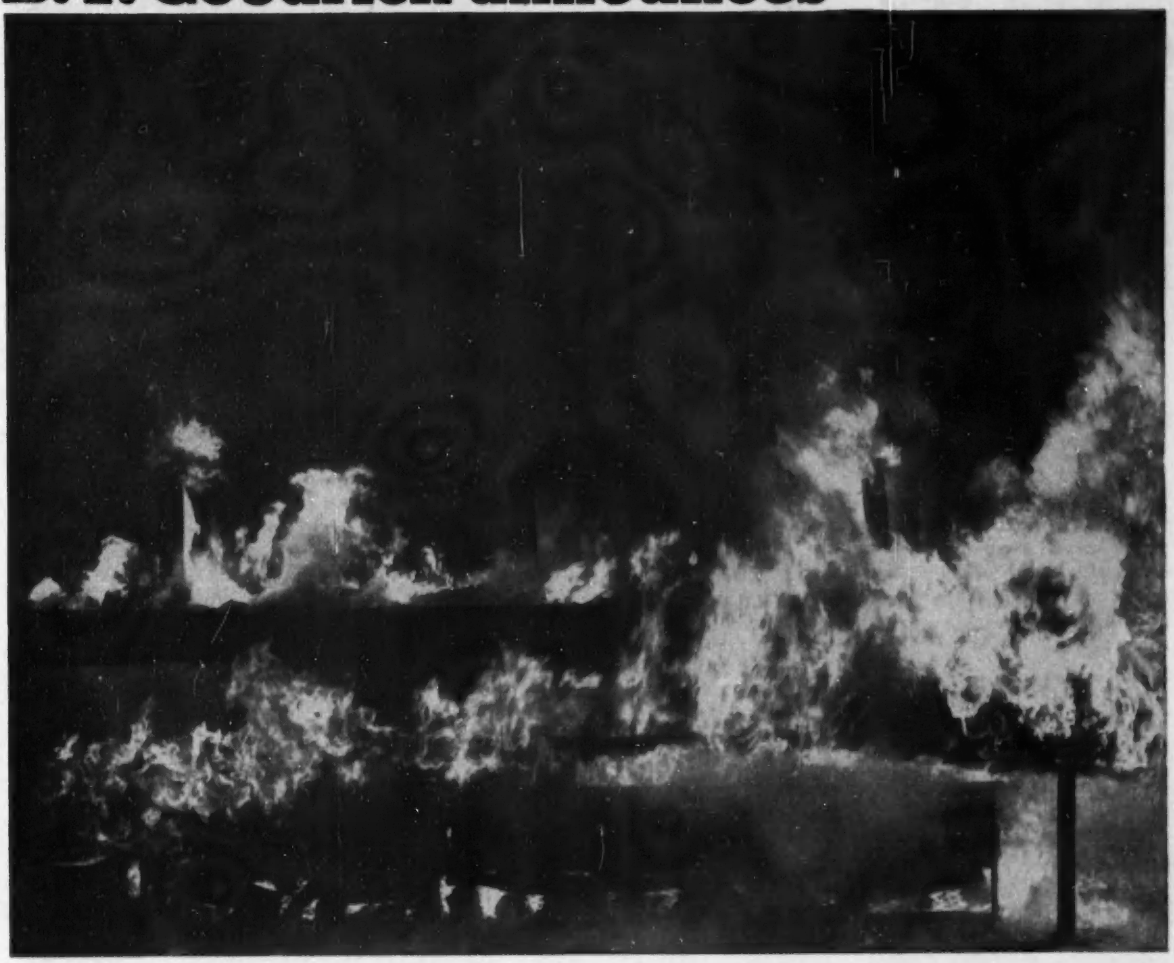
Specially designed to install flexible pipe and cable underground at low cost, a new pipe and cable layer eliminates hand digging and machine trenching. This new tractor tool, which retails at well under $100, will put flexible piping up to 1½ in. in diameter into the ground as deep as 18 in. It is thought that the tool will find application wherever relatively shallow underground flexible pipe or cable installations are desirable and practical.

Actually the pipe and cable layer is an agricultural "sub-soiler" to which is added a guide tube for conducting pipe or cable into the bottom of the cut; guide rings are mounted on the tractor for conducting the pipe or cable back to the guide tube. According to the manufacturer, the entire unit can be mounted on the tractor and readied for action in a few minutes.

To lay flexible pipe or cable, an exploratory subsoiling pass is first made with the tractor and subsoiler over the route of the projected line, so that any rocks, roots or other underground obstructions present may be cleared away. Then the length of pipe or cable to be installed is laid out right alongside the cut.

(*Continued on page 68*)

B. F. Goodrich announces



Koroseal now used in roofing helps prevent fires like this

Koroseal is part of new Lexsuco roof construction

A NEW type of construction cuts out a fire hazard in flat roofs. Koroseal flexible material is used to replace the conventional vapor barrier made up of asphalt and layers of asphalt-saturated felt.

Use of Koroseal eliminates burnable material between roof deck and insulation. It also prevents tar or asphalt from dripping down to feed fires below the roof. Other features of the new roof make it more rigid, help cut down buckling during a fire.

The Koroseal flexible material used in the Lexsuco roof construction is specially compounded for this use. It is supplied in rolls for easy handling. It is laid out in strips and the laps are sealed. Full-scale fire tests have proved the advantages of this new type of roof over ordinary construction. Yet the complete roof costs no more, sometimes less than standard roofs. B. F. Goodrich does not make direct sales of Koroseal for roofing—*you can get complete facts by writing Lexsuco, Inc., 4819 Lexington Ave., Cleveland 3, Ohio.*

Koroseal flexible material is made in many forms: hard or soft, film or sheet, it can be molded or extruded, fabric can be coated with it. Koroseal may have many future uses in the construction industry. It is waterproof; will not crack, chip or peel, is not affected by paint or by most chemicals and acids. If you have a problem Koroseal may help solve, write: *The B. F. Goodrich Company, Marietta, Ohio.*

Koroseal—T. M. Reg. U. S. Pat. Off.

Koroseal

FLEXIBLE MATERIALS BY

B.F.Goodrich

INDUSTRIAL PRODUCTS DIVISION

COMBAT CORROSION!

Specify

TAPECOAT®

...the Original Coal Tar Coating in Tape Form for Pipe, Pipe Joints, Couplings and Tanks

TAPECOAT is a coal tar coating with a tar-saturated close-woven fabric as a carrier for speed of application. The coal tar is self-bonding and requires no foreign adhesives.

Because coal tar is nature's own protection against corrosion, TAPECOAT resists moisture, acids, alkalis, soil stress, electrolysis, chemical fumes, fly ash, salt water, salt-laden air, barnacles, and other severe corrosive and abrasive conditions, above and below ground.

TAPECOAT is clean to handle and easy to apply by spiral or "cigarette" wrapping with the use of a torch to bleed the coating to insure a continuous bond. It cuts maintenance and replacement costs.

TAPECOAT is sized to the job—comes in rolls of 2", 3", 4", 6", 18" and 24" widths to meet specific requirements on pipe, pipe joints, couplings, tanks, cable, conduit and other vulnerable steel surfaces.

PROVED IN SERVICE SINCE 1941

TAPECOAT has proved its dependability over the years in serving gas and oil companies, railroads, telephone companies, air lines, shipbuilders and operators, water and sewage works, chemical and industrial plants, engineers and contractors . . . providing continuing protection against corrosion.

Write for descriptive brochure and prices.

The TAPECOAT Company

Originators of Coal Tar Tape Protection

3551 Lyons Street, Evanston, Illinois

NEW PRODUCTS

At the beginning of the route, the pipe or cable is threaded through the front guide ring on the tractor, rear guide ring and guide tube attached to the subsoiler beam. When the tractor is driven forward, the subsoiling beam goes into the ground and the piping or cable slips through the guides, automatically being deposited at the bottom of the subsoil cut. Speeds of as high as 300 fpm are reported practical.

After the piping or cable is laid, the resulting slight ridge in the ground is leveled by merely driving over it with the rear tractor wheel. FERGUSON DIV., MASSEY-HARRIS-FERGUSON INC., 1721 PACKARD AVE., RACINE, WIS.

Waterstop Boasts Savings In Time, Labor, Materials

A split-type dumbell rubber waterstop is said to eliminate the need for slotting or split-bulkheading when forming structures or walls where hydrostatic water pressure is involved.

The waterstop is supplied with one-half of the width split so that it may be fastened or nailed to the inside of the bulkhead in such a manner as to form a "T". This eliminates the necessity of slotting or splitting the bulkhead, and thus is said to result in a saving of time, labor and forming material. After the section has been poured, the bulkhead is stripped and the two divided sections are joined together with rubber cement or by stapling.

The waterstop is available in 6 and 9 in. widths in standard G.R.S. rubber, neoprene, natural rubber or Geon polyvinyl. SERVICISED PRODUCTS CORP., 6051 W. 65TH ST., CHICAGO, ILL.

Auxiliary Transmission Get Trucks Over the Rough Spots

Two auxiliary transmissions have been added to the Truckstell line of special truck equipment.

The first auxiliary is a two-speed model that provides an underdrive ratio of 2.18 to 1, more than doubling the pulling power in compound low. It is engineered to serve trucks with gas engine displacement of up to 265 cu in.

The other auxiliary is a three-speed model designed to supply extra power gegars and gear splits in all popular size trucks. Optional ratio combinations are available as is a built-in, full engine torque, variable speed power take-off. This auxiliary is built for duty with gas engines of up to 400 cu. in. displacement. TRUCKSTELL MFG. CO., UNION COMMERCE BLDG., CLEVELAND 15, OHIO.

Less Wear, Greater Economy Claimed for New Truck Tire

A new truck tire called the U. S. Royal has just been introduced in the competitive price field. It has a wide five-rib tread, with extra-sharp tread edges and irregular grooves that are said to give excellent traction on slippery surfaces.

The new tire is being made in a wide range of sizes from 6.00-16 with 6-ply rating through 10.00-22 with 12-ply rating. Prices range from $21 to $120.65, plus the excise tax in each instance.

According to the company, the truck tire has a tough heat-resistant rayon cord construction that stands up under constant punishment; a special plastic-resin coating bonds the rubber and fabric into a very strong carcass that is also suitable for recappings. Double shock-pads are used to absorb road shock and reduce road failures. UNITED STATES RUBBER CO., ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Lightweight Vibrator Permits On-the-job Portability

A high-speed concrete vibrator is mounted on a light-weight base so that it can be easily carried around on the job. The JB machine vibrates at from 6,000 to 9,300 vpm. and has a 2-hp, 4 cycle, air-cooled engine. It has a ball bearing eccentric belt tensioner and a special spring lock for fastening the flexible shaft to the countershaft.

The JB vibrator is furnished with the same size flexible shafting—$\frac{3}{8}$-in. dia—as larger machines. The standard equipment includes one Model 1600 $1\frac{3}{8}$ x 10-in. vibrator head. It can also be furnished with heads in sizes 2 x 10 in. or $2\frac{1}{2}$ x 10 in. Different combinations of 7-ft, 14-ft or 21-ft flexible shafts can be furnished to give total lengths up to 35 ft. The vibrator head can be removed and attachments screwed on for either wet or dry grinding of concrete. STOW MFG. CO., 609 SHEAR ST., BINGHAMTON, N. Y.

Caterpillar Motor Graders Receive New Improvements

The Caterpillar No. 12 Motor Grader now packs 115 hp, and speed has been increased to 4 mph in second gear and 21.5 in sixth gear. In addition, the clutch and transmission have increased capacity to match the greater horsepower.

In both the Cat No. 12 and No.

(*Continued on page 70*)

"Featherweight" 85% Magnesia was installed on the ducts, housings and lines of these "making" machines in the plant of Behr-Manning Corporation, a division of Norton Company. Insulation contractor—Armstrong Cork Company.

Heat saved . . . Money saved with K&M high temperature insulations

K&M insulations keep costs down by holding heat losses to an absolute minimum. You can always count on dependable "Featherweight" 85% Magnesia Insulation to provide exceptionally efficient heat conservation.

Made of 85% basic carbonate of Magnesia and asbestos fiber, "Featherweight" 85% Magnesia effectively insulates piping and equipment with temperatures up to 600°F. Used with K&M Hy-Temp insulation, its range is extended to 1900°F. This insulation combination lasts the life of the equipment it serves, withstands moisture, vibration and frequent temperature change.

New and now available is "Featherweight" Water-Resistant Magnesia insulation for temperatures up to 450°F. It is used underground where severe water exposure may damage the insulation or on indoor steam heated lines and equipment where high humidity and moisture are present.

Your K&M distributor is an experienced applicator who will gladly give you details about these money-saving insulations. Or write directly to us.

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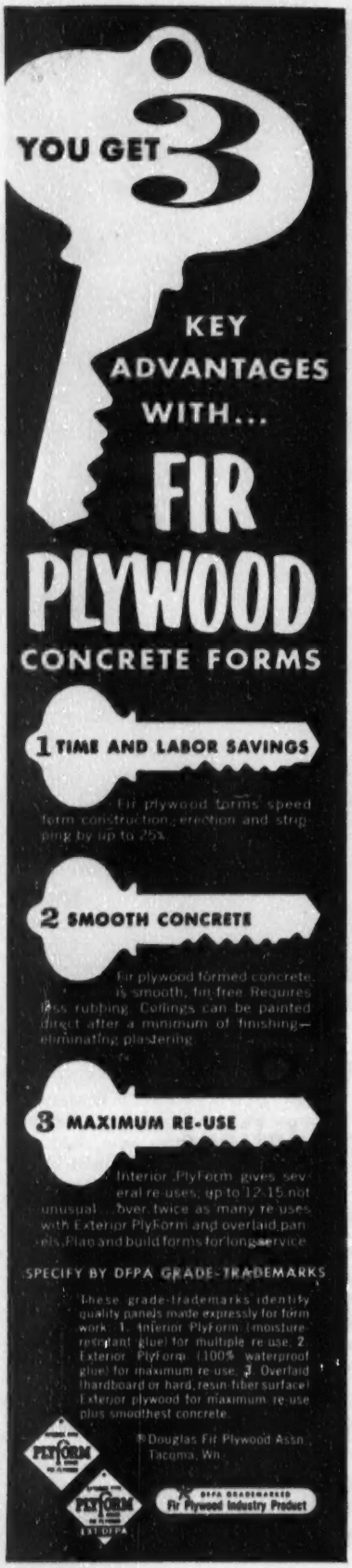
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KEY ADVANTAGES WITH...
FIR PLYWOOD
CONCRETE FORMS
1 TIME AND LABOR SAVINGS
Fir plywood forms speed form construction, erection and stripping by up to 25%.
2 SMOOTH CONCRETE
Fir plywood formed concrete is smooth, fin free. Requires less rubbing. Ceilings can be painted direct after a minimum of finishing—eliminating plastering.
3 MAXIMUM RE-USE
Interior PlyForm gives several re-uses; up to 12-15 not unusual ... over twice as many re-uses with Exterior Plyform and overlaid panels. Plan and build forms for long service.
SPECIFY BY DFPA GRADE-TRADEMARKS
These grade-trademarks identify quality panels made expressly for form work. 1. Interior PlyForm (moisture-resistant glue) for multiple re-use. 2. Exterior PlyForm (100% waterproof glue) for maximum re-use. 3. Overlaid (hardboard or hard, resin-fiber surface) Exterior plywood for maximum re-use plus smoothest concrete.
PLYFORM
PLYFORM
DFPA GRADE-MARKED
Fir Plywood Industry Product
® Douglas Fir Plywood Assn., Tacoma, Wn.

112, one lever from-the-seat starting is now available. Also, they are equipped with accelerator-decelerator pedals that permit changing speeds without changing the throttle setting. The new throttle is a free moving non-ratchet type. Further the instrument panel is located in the cab to the right of the operator for greater visibility. CATERPILLAR TRACTOR CO., PEORIA, ILL.

Crushing and Screening Plant Made for Wet, Sticky Jobs

A two-unit hammermill crushing, screening and loading plant has been designed for operation in wet, sticky materials and in quarries contaminated by clay balls and mud pockets.

The plant features a Bulldog Model HM-04-NC, portable hammermill unit teamed with a Universal Model 5142 portable screening unit. The combination is said to produce aglime and road rock, aglime and chips, or 100 per cent aglime as desired.

The entire crushing operation is performed by the Bulldog hammermill operating in closed circuit. It is equipped with a moving breaker plate to prevent build-up of material in the breaking chamber and a moving cleaning bar to keep the discharge free at all times. The unit consists of a 42-in. x 12-ft apron feeder with shovel loading hopper, the hammermill, 36-in. front delivery conveyor, 18-in. return circuit conveyor and operator's platform all mounted on a steam gooseneck trailer with pneumatic tires. With the exception of the diesel-powered hammermill, all units are all electric push button controlled.

The portable screening unit consists of a 5-ft x 14-ft double deck inclined gyrating screen with 70 sq ft of screening area in each deck and a ball tray deck under the second deck for maximum efficiency when producing aglime, 30-in. channel frame feed conveyor, 30-in. front delivery conveyor, 24-in. side delivery conveyor, and 18-in. channel frame return circuit conveyor all mounted on a pneumatic tired gooseneck trailer. All-electric drive is used with the control panel located on the operator's platform of the crushing unit. UNIVERSAL ENGINEERING CORP., CEDAR RAPIDS, IOWA.

Safety Switch Prevents Cooling Tower Fan Damage

The Dual-Safety Switch, a combined vibration cut-off and safety switch for cooling tower fans is said to be the first such combination control to offer protection against both extensive vibration damage and personnel accidents. A mercury switch automatically stops a fan's electric current when vibration indicates trouble. Degree of sensitivity can be set by a manual adjustment.

Once the switch has been tripped, the faulty fan cannot be started again, except by resetting after maintenance is completed. The switch is said to assure maximum safety for personnel working in the fan stacks; accidental resetting by vibration or any person is eliminated.

Operation is from the cooling tower deck, not from the fan stack. Its fixed position on the gear supporting beam is aligned for instant reaction to any fan or driving shaft irregularity.

The switch is attached to each fan on Santa Fe cooling towers, but it may also be installed in any existing cooling tower. SANTA FE TANK & TOWER CO., 5401 BOYLE AVE., LOS ANGELES 58, CALIF.

Field Sketch Pad Offered To Sanitation Engineers

To aid field engineers in laying out and planning water and sewage systems, special field sketch pads have been created.

A number of special symbols were also designed and are printed on the sheets to help the industry standardize on simple pictorial representations of water treatment and sewage processing elements that must constantly be illustrated.

These field sketch pads, printed on lightweight stock in orange ink, are available to engineers, consultants and others in the water, sewage and process industries upon request. AUTOMATIC CONTROL CO., 995 UNIVERSITY AVE., ST. PAUL 4, MINN.

6.6-hp Air-cooled Engine Designed for Direct Mounting

The Kohler K160, 4-cycle, air-cooled, gasoline engine is now available for direct mounting applications. The engine, rated 6.6 H.P., is designated Model K160P.

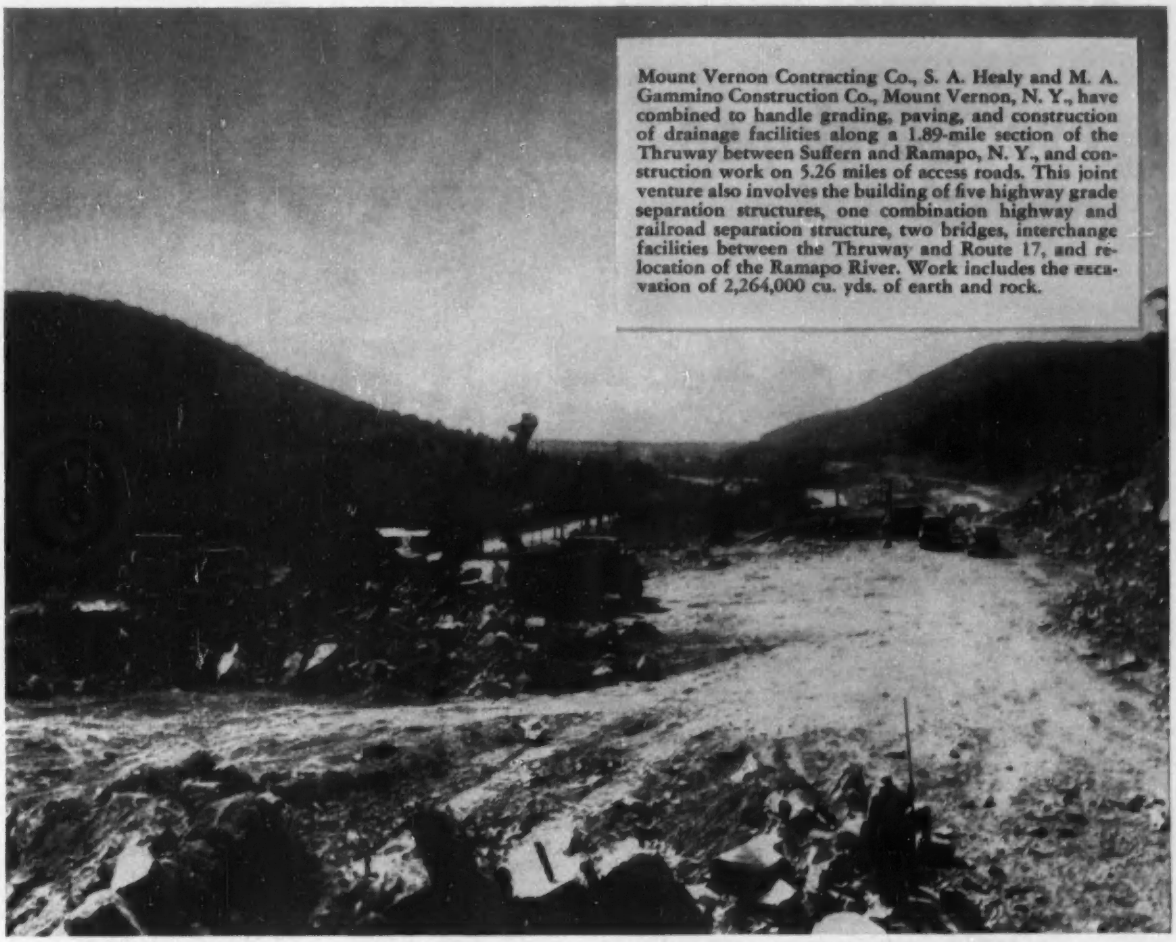
A machine-faced crankcase and threaded power take-off shaft extension are said to make the engine particularly adaptable for direct mounting on pumps. The K160P weighs 67 lbs and includes Stellite-faced exhaust valves and valve inserts, valve rotators, oil bath air cleaner, flyball governor, ball bearings at both ends of the crankshaft and dust-proof and moisture-proof breaker point assembly. KOHLER CO., KOHLER, WIS.

(*New Products continued on page 75*)

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on New York State Thruway



Mount Vernon Contracting Co., S. A. Healy and M. A. Gammino Construction Co., Mount Vernon, N. Y., have combined to handle grading, paving, and construction of drainage facilities along a 1.89-mile section of the Thruway between Suffern and Ramapo, N. Y., and construction work on 5.26 miles of access roads. This joint venture also involves the building of five highway grade separation structures, one combination highway and railroad separation structure, two bridges, interchange facilities between the Thruway and Route 17, and relocation of the Ramapo River. Work includes the excavation of 2,264,000 cu. yds. of earth and rock.

THE New York Thruway is another tremendous and important project where Gulf tops the list of suppliers of petroleum products. Twenty leading contractors on the Thruway, with a total of 43 jobs, rely on Gulf to help keep equipment delivering top performance.

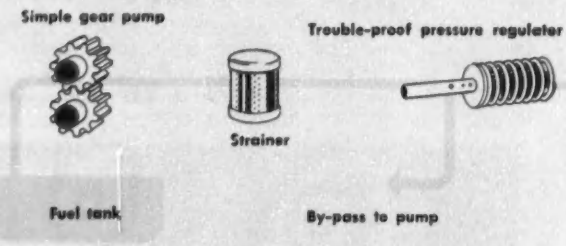
Mount Vernon Contracting Co., S. A. Healy and M. A. Gammino Construction Co., for example, know from experience that Gulf quality lubricants provide better protection against mechanical delays. And that Gulf fuels help them gain an extra margin of engine power and efficieny. Then too, they appreciate the helpful engineering counsel that Gulf provides, as well as Gulf's prompt delivery service.

Let us discuss with you how Gulf products and service can help you on your next job. They are available to you through more than 1400 conveniently located warehouses. Gulf Oil Corporation · Gulf Refining Company, 1822 Gulf Building, Pittsburgh 30, Pennsylvania.

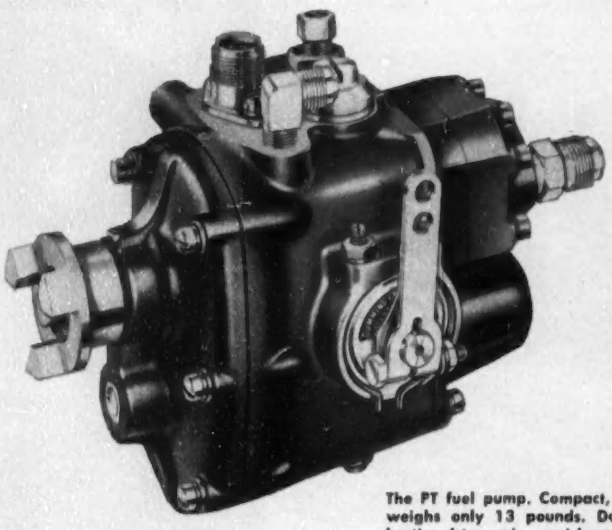
GULF

Here's the simplest diesel fuel system ever developed!

Simplest pump and fuel control arrangement



Cummins new PT *fuel system...*

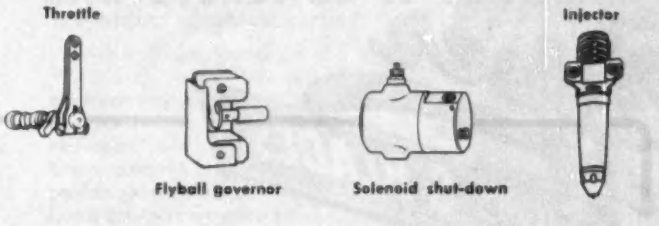


The PT fuel pump. Compact, easy to handle, weighs only 13 pounds. Does not have to be timed to engine, quick and easy to install.

The PT injector utilizes the exclusive Cummins principle of fuel injection which has set the highest standards of performance and economy for more than 20 years.

THE revolutionary new PT fuel system, now standard on all Cummins Diesels, has fewer and far simpler parts than carburetor and ignition systems or ordinary diesel fuel systems. It is easy to understand, simple to work with, can be serviced by any mechanic. No longer any need for fuel system specialists! The PT fuel system has undergone two years of field testing and millions of operating miles under every conceivable condition. Its dependability record is phenomenal. Operators report even less fuel consumption than with earlier Cummins fuel systems and far less cost of maintenance. The PT fuel system can be installed on any Cummins Diesel built since 1932.

Cummins *leader in lightweight high speed diesel power 60-600 h.p.*



PT advantages over gasoline systems:

No contact points to adjust	No vapor-lock problems
No condenser to replace	No flooding
No spark coil to short	No choking or priming
No wiring harness to short	No needle valves to clog
No spark plugs	No butterfly valve
	No float level to maintain
	No float valve to stick

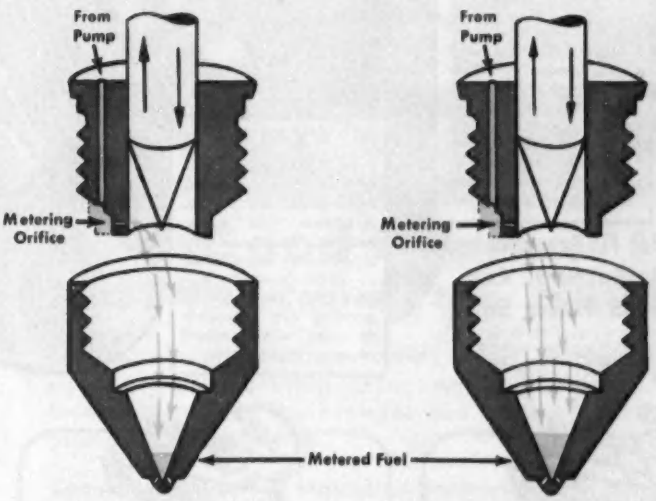
PT advantages over ordinary diesel systems:

No fuel rack adjustments	No distributor discs
No check valves	No metering pumps
No needle valves	No high-pressure fuel lines
No helixes	No fuel pump timing

. . . *simpler to work with than gasoline carburetion and ignition*

Simplest Fuel Metering Device

The principle is simply that the amount of fuel flowing through a fixed orifice varies according to the amount of pressure on the fuel. Pressure is controlled by the throttle on the PT pump. Fuel flow through orifice is cut off as injector plunger, actuated by engine camshaft, moves down to inject fuel.



When engine is under partial load, fuel pressure is low, and only a small amount of fuel passes through orifice into injector cup.

When engine is under full load, fuel pressure is increased, and greater amount of fuel passes through orifice into injector cup.

Mail this today, and get more PT facts!

CUMMINS ENGINE COMPANY, INC. Dept. ER-11
Columbus, Indiana

Please send me free illustrated folder, "Cummins PT Fuel System."

Name_____

Company_____

Address_____

City_____ Zone____ State_____

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ABRASIVE
The consistent quality of Clipper WET and DRY cutting Abrasive Blades guarantees you of the fastest cut . . . at the lowest cost . . . with the greatest ease. Only Clipper gives you a complete selection of specifications for any cutting job.

"CBR"
Favorite blade of thousands of masonry saw and hand power saw owners. A Clipper "CBR" Break-Resistant Abrasive Blade is virtually unbreakable . . bend it — twist it — drop it! For difficult grinding cuts impossible to make with standard abrasive blades.

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Amazing cutting speed and performance are yours with a genuine Clipper Diamond Blade. Rigid quality control, manufacturing "know-how", and the ability to select and use the best materials make Clipper Diamond Blades the World's Finest . . . Use one on your next job!

Clipper Blades Fit Every Make and Model Masonry, Concrete, or Hand Power Saw.
Genuine Clipper Blades are available in sizes and with arbor shapes to fit any make masonry, concrete, or hand power saw. Buy Clipper Blades by the case for Greater Savings!

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ONE OF 7 MODELS
FROM $395

Clipper MASONRY SAW
The World's Finest Masonry Saw. Simple in operation — Rugged in construction — Dependable in performance. Clipper's patented-exclusive features give you unmatched cutting action. "Select-A-Notches" give instant, positive height adjustments . . . "Pressure Equalizer" automatically adjusts blade pressure. Clipper's FREE TRIAL guarantees you satisfaction at no obligation.

Clipper CONCRETE SAW
Self-propelled — and powered for heaviest duty — Clipper's new "ConSawMatic" Saws get better results from EVERY Blade—for lowest cutting cost per foot. Contraction Joints in highways and airport runways—Trenches for conduits, sewers, gas and water lines—Warehouse Floors of monolithic concrete—ALL use genuine Clipper Saws and Blades—the Perfect Combination for Quality Results!

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YOUR ONLY GUARANTEE OF COMPLETE SATISFACTION ACTUAL ON-THE-JOB "TEST!

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FACTORIES IN ENGLAND AND FRANCE

SOLD ONLY DIRECT FROM CLIPPER FACTORY BRANCHES

Rugged Transit-level Maintains High Accuracy

The Brunson Model 65 is a builder's transit-level that is said to incorporate many advantages of construction and accuracy hitherto limited to engineers' transits costing nearly three times as much.

The new instrument features dustproof ball bearing center and telescope axis, sealed in with a special silicone grease that, on the basis of numerous tests, is reported to need repacking about once every twenty years.

According to the manufacturer, the 65 is practically wearproof as a result of close tolerance and the special lubrication, and will operate freely at temperatures ranging from minus 70 degrees to plus 160 F. It has been tested by continuous rotation in a dust chamber for 350 consecutive days without binding, loss of operable accuracy, or need for lubrication and repairs.

The eight-inch, 20-power telescope is sealed against dust and moisture-condensation; it may be tilted as much as 42 degrees up or down. The lenses are coated; cross wires are of glass fiber, with internal focus collimated from three feet to infinity.

The vertical arc and horizontal circle are graduated in degrees with vernier reading to five minutes. A long vial attached to the telescope permits accurate leveling; the cross plate vial is highly sensitive. The wobble pin in the tangent screw point is said to insure that the instrument stays "on point" indefinitely.

Fully equipped with carrying case, trivet points, fixed length tripod, etc., the Brunson Model 65 is priced at $240. Charles Bruning Co., 4700 Montrose Ave., Chicago 41, Ill.

Lightweight Rule Has 1/10 And 1/100-ft Graduations

A tape-rule with a white blade graduated in both fractions of inches and 10th's and 100th's of feet has been developed for use by engineers, surveyors, and draftsmen.

The blade is finished in pure white with bold black figures and black graduations, coated with a clear abrasion-resistant plastic. It also has the self adjusting end hook for hook-over and butt-end measurements.

The new tape-rule also features a lighter, stronger case, die cast from magnesium alloy, with a non-glaring satin chrome finish. Furnished in 6, 8, 10, and 12-ft lengths, it may also be obtained with regular fractional markings. The Lufkin Rule Co., Saginaw, Mich.

Residence Hall!
Bridge!
—Cub River Bridge, Lewiston, Utah
—1000 Lake Shore Drive Bldg., Chicago
—Men's Residence Hall, University of Wash., Seattle
—Donald M. Sharp Memorial Community Hospital, San Diego
Hospital!
Luxury Apartments!

4 Good Reasons for MASONITE *Concrete form* PRESDWOOD®

One contractor uses it for super-smooth ceilings. Another finds these dense, all wood formboards cutting stoning time as much as 50%. A third likes it because it gives him many re-uses. And a fourth appreciates the better paint job it makes possible.

Consider this about Masonite Concrete Form Presdwood:

- Less than ½ the cost of other smooth-surface materials
- Won't split, splinter or crack
- Can be curved for arches, columns, etc.
- Easily worked with ordinary carpentry tools
- Large 4′ x 8′ and 4′ x 12′ panels. Fewer fins.

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Proper Use of Wire Rope with Wire Rope Core

What is it? It is a completely metallic rope made with a separate wire rope as a core, instead of the usual fiber core.

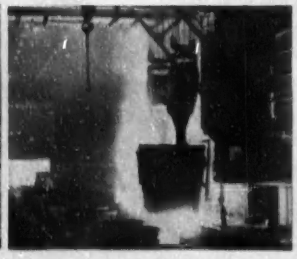
Why is it used? The steel core resists extreme pressure of individual strands on the core under very heavy loads. Here, a Red-Strand steel core rope substantially outlasts a fiber core rope. The extra steel in the core increases rope strength and safety by 7½%, compared with wire rope with fiber core. For occasional heavier loads this eliminates time and expense of changing sheaves, blocks and equipment to suit a bigger fiber core rope.

Red-Strand steel core rope answers the problem of crushing when rope is spooled in multiple layers on small diameter drums and winches—or when heavy loads are dragged or pulled. It also resists the damaging effects of excessive heat.

Where is it used? For extra strength and to resist heavy load pressure: on shovel and draglines—for drag, hoist, crowd and frequently boom ropes; on dredges, trench hoes, cranes and similar heavy duty equipment. To resist crushing: on bulldozers, scrapers, coal cutters, coal loaders, logging, arch and choker lines, and on rotary drilling lines. To resist excessive heat: on hot ladle cranes.

Which make should you use? Red-Strand steel core wire rope is highly recommended by its users for its higher-than-rated quality and longer-than-expected service. That saves money.

What's the next step? Talk to your Leschen distributor or Leschen field man. They're well qualified to answer your specific questions about Red-Strand steel core wire rope—or to help solve other wire rope problems.



Severe stress, pressure and crushing occur on rotary drilling drums, winches, shovels, draglines, logging lines, and others. Where tons of molten steel are to be lifted by wire rope, great strength and resistance to intense heat are required. Here Hercules Flattened Strand wire rope with wire rope core delivers much-longer-than-expected service.

Hercules Red-Strand wire rope made by

LESCHEN WIRE ROPE DIVISION

The Watson-Stillman Company
(A SUBSIDIARY OF H. K. PORTER COMPANY INC.)
St. Louis 17, Missouri

PUBLICATIONS

Water filtration – "Instrumentation and Control for Water Filtration Plants," Bulletin 100-K2, is a 16-pager describing the complete line of equipment for water treatment plants and includes sketches of typical instruments. BUILDERS-PROVIDENCE, INC., 345 HARRIS AVE., PROVIDENCE 1, R. I.

Spray painting–Catalog 956 is a 74-page book covering the line of Binks spray painting equipment. The 1,100 products and accessories have been classified into 11 sections for fast reference. These sections are shown on the front and back covers of the catalog and are keyed with the pages by a special thumb index that makes it easy to locate any product without reference to the index. BINKS MFG. CO., 3122 CARROLL AVE., CHICAGO 12, ILL.

Calcium chloride roads–A new booklet "The Calcium Chloride Road" describes in non-technical language new gravel, crushed stone and other similar types of road can be converted and maintained without increasing present budgets. Illustrated with many how-to-do-it photographs, the text of the new booklet covers such phases of the subject as: how to plan a calcium chloride road; how to convert roads lacking sufficient binder soil or aggregate; drainage, blading and shaping; application of calcium chloride; and seasonal maintenance. ADVERTISING & SALES PROMOTION DEPT., SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP., 61 BROADWAY, NEW YORK 6, N. Y.

Electric equipment–A new booklet covers a line of of outlets, switches and utility boxes. The booklet includes a list of more than 170 different types of boxes to meet wiring installation needs. Included are boxes for use with armored cable, nonmetallic sheathed cable, rigid and flexible conduits and electrical metallic tubing. Bar hanger boxes, covers, gang boxes and a number of other miscellaneous items are also listed. Booklet No. 18-74. GENERAL ELECTRIC, CONSTRUCTION MATERIALS DIV., BRIDGEPORT 2, CONN.

Industrial power–The complete line of International industrial power products, 73 in all, is described in a new 48-page catalog just published. First of the eight sections in the catalog describes the seven International crawler tractors, followed by descrip-

(*Continued on page 78*)

Model 705-B Runabout Service Ditcher. Designed for scattered jobs. Vertical boom. Fluid Drive. Hydra-Crowd. 15 miles per hour travel. Widths up to 10½". Depths to 4'.

DIG

DIG for profit.

DIG long jobs.

DIG scattered jobs.

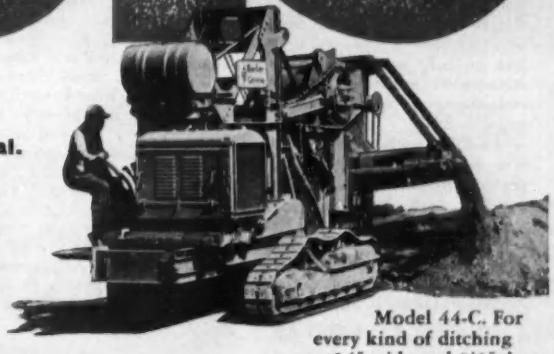
DIG with Hydra-Crowd and Fluid Drive.

DIG with new curved teeth that last 3 to 5 times longer.

DIG through frozen ground, asphalt pavement, coral rock—virtually any material.

DIG with the vertical boom that leaves no ramp, operates in closest quarters, digs right up to obstructions.

DIG with the machine that was engineered to DIG and get to the next job.



Model 44-C. For every kind of ditching up to 24" wide and 8'3" deep.

You don't have to DIG for the facts. They will be sent at your request. 54-33-D

Barber-Greene

AURORA, ILLINOIS, U.S.A.

BG

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cost studies . . . nearby job inspection . . . plant layouts

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ADDRESS
CITY ZONE STATE
Recently completed addition (rear) at BEELER WAREHOUSE CORP.
General Contractors TRAYLOR BROS., INC.
All structural steel and doors INTERNATIONAL STEEL CO.

3 IN A ROW...

won by INTERNATIONAL SERVICE

BUSINESS HAS BEEN GOOD at the huge Beeler Warehouse pictured above! So good, in fact, that the first big warehouse building — erected just a few years back — has already been increased by two maumoth additions, to meet the requirements of this fast-growing organization.

And in each case, International was awarded the contract for supplying *both* structural steel and loading dock doors.

The third and newest Beeler addition brings to 403,200 square feet the total warehouse area now framed in International Steel. Both railroad sidings and truck docks are serviced by batteries of one-piece vertical lift doors — all balanced to assure easy opening or closing, completely or partially opened as required — all 42 engineered and fabricated at International Steel Company.

It was International's complete, and *completely integrated* service . . . proved most efficient and economical on all previous jobs . . . that made it "three in a row" on this project. This same all-inclusive service is ready to go to work for you, too, on any problem or project involving the fabrication of steel. And the above coupon will bring you convincing proof that International *can* serve *you* better!

Some of the 42 International Vertical-Lift Doors — measuring from 8' x 10' up to 18' x 10' — installed at Beeler Warehouse Corp.

INTERNATIONAL SERVICE

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INTERNATIONAL STEEL COMPANY

PUBLICATIONS

tive information on International rubber-tired tractors with scrapers and bottom dump wagons. The third section is devoted to push-loaded and self-loaded four-wheeled scrapers while the fourth section is devoted to hydraulic and cable-controlled bulldozers, bullgraders and angle dozers. Allied equipment and attachments to the crawlers are featured in the fifth section and cable control units and wheel tractors for industrial use are presented on the pages forming the next two sections of the catalog. Final portion covers the models of diesel, gasoline and gas power units available from the manufacturer. CONSUMER RELATIONS DEPT., INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

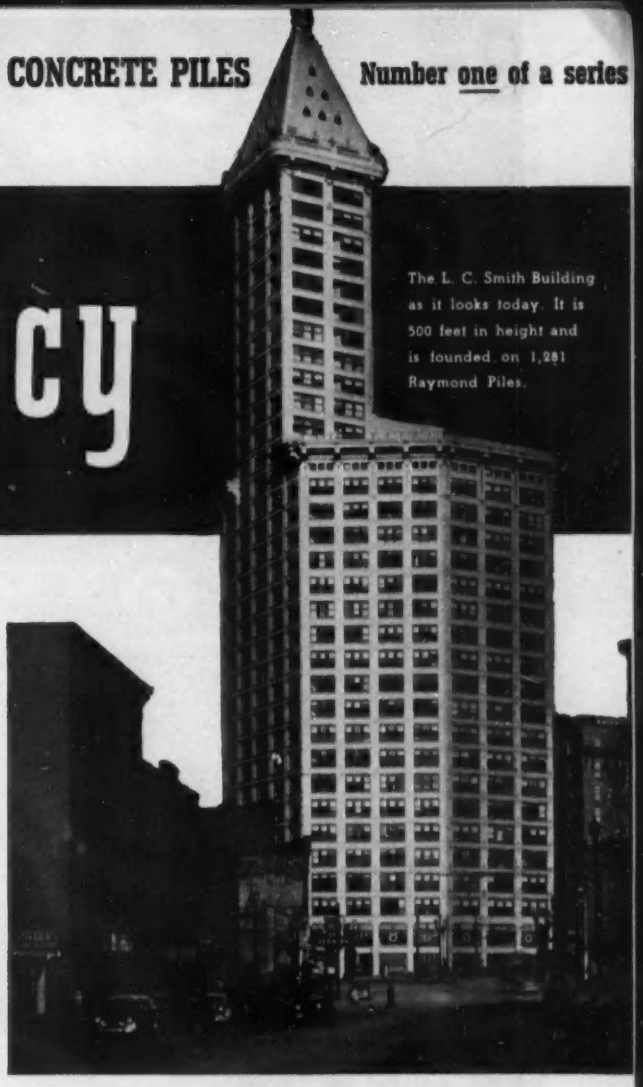
Parts manual—A 20-page parts manual shows all elevation views and the complete assembly of the Vibro-Tamper. The various units of the machine are identified in overall and detailed photographs. Exploded views and drawings show the breakdown of every important mechanism, such as the vibrating units, transmission, power pack, and gear reducers. A lubrication chart and operating instruction complete the book. Catalog No. D-54. INTERNATIONAL VIBRATION CO., 16702 WATERLOO RD., CLEVELAND 10, OHIO.

Rotary distributors—A bulletin covering Walker rotary distributors for trickling filters has recently been released. Complete details of the Walker Rotoseal Rotary Distributors in sizes ranging to 216 ft maximum bed diameter are included. In addition the bulletin contains discussions and design data to assist in designing the complete trickling filter unit. Bulletin 23S70. WALKER PROCESS EQUIPMENT INC., 840 N. RUSSELL AVE., AURORA, ILL.

Roof decks—Fireproof, insulated roof decks are covered in three new technical folders recently issued. "Poured-in-Place Vermiculite Concrete Over Vented Steel Roof Decks" describes a recent development that permits considerable flexibility in joist spacing and slab thickness. "Vermiculite Concrete Roof Decks over Paper-Backed Wire Lath" is the title of two folders covering steel or concrete joist construction where the joist spacing does not exceed 32 in. OC. One folder is an alternative designed for regions where temperatures are 50 deg F or above during the pouring and curing period. VERMICULITE INSTITUTE, 208 S. LA SALLE ST., CHICAGO 4, ILL.

* **ADVANTAGES OF RAYMOND CONCRETE PILES** **Number one of a series**

permanency



The L. C. Smith Building as it looks today. It is 500 feet in height and is founded on 1,281 Raymond Piles.

IN 1912 the first Raymond Concrete Piles were driven for one of the country's earliest skyscrapers . . . the 42-story L. C. Smith Building in Seattle. Today, 41 years later, the L. C. Smith Building, towering high above Seattle's skyline, is still the tallest building on the Pacific Coast . . . exemplifying the fact that when you specify Raymond Piles you can be sure of a firm and permanent foundation.

RAYMOND'S DOMESTIC SERVICES . . .

Soil Investigations • Foundation Construction • Harbor and Waterfront Improvements • Prestressed Concrete Construction • Cement-mortar Lining of Water, Oil and Gas Pipelines In Place

RAYMOND'S SERVICE ABROAD . . . In addition to the above, all types of General Construction.

RAYMOND

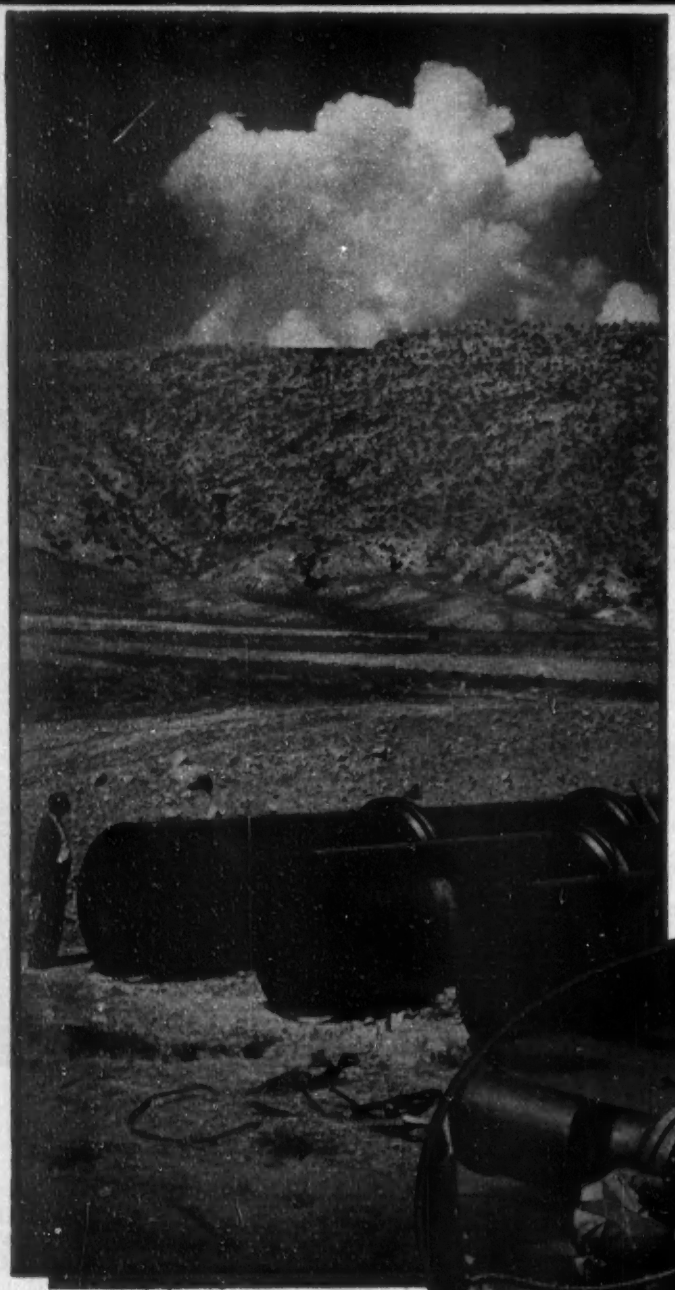
CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

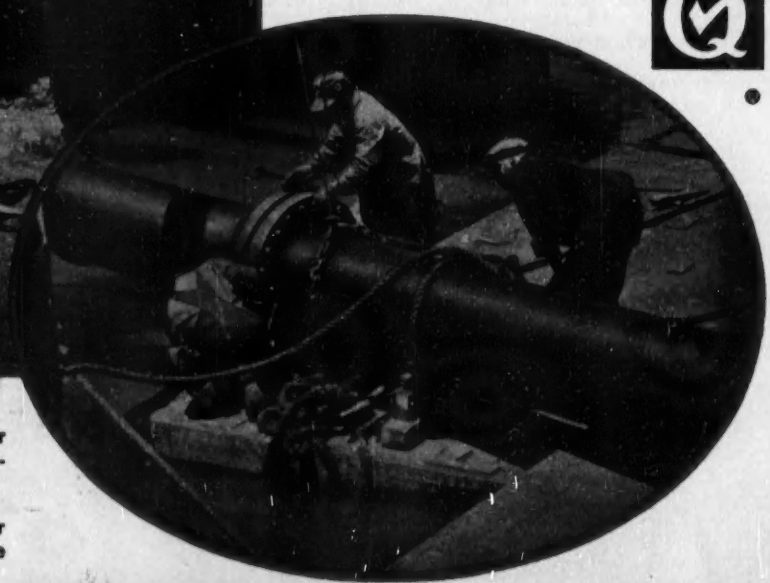
Branch Offices in Principal Cities of the United States, Central and South America

Two Raymond rigs driving piles for the L. C. Smith Building in Seattle in May, 1912.

Versatile-



You know, of course, that cast iron pipe is widely used for water and gas mains, pressure sewers and outfalls, and almost exclusively in water filtration and sewage treatment plants. It is not so well known that this versatile pipe is also rendering yeoman service to Industry in keeping down maintenance cost in many applications. Such industries, for example, as chemical, paper, rayon and other process industries; coal mines and oil refineries; railroads and steel plants. Where effective resistance to corrosion is mandatory for long life and economy, specify cast iron pipe. For information write: Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Avenue, Chicago 3, Ill.

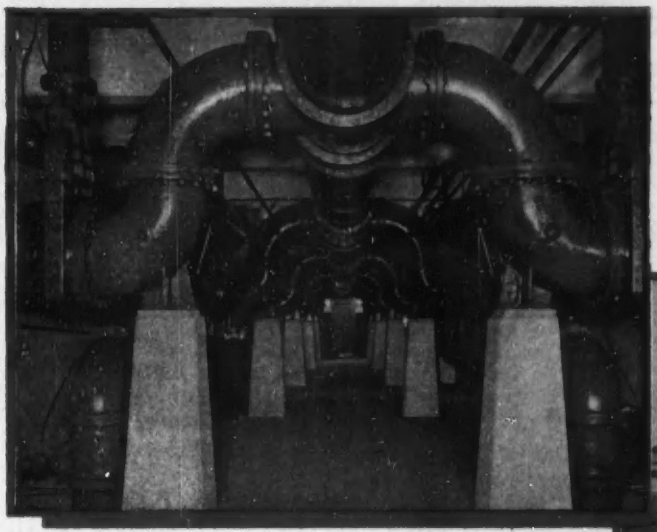


1800 feet of 36" to 60" cast iron pipe for culvert in connection with relocation of railroad tracks in Wyoming

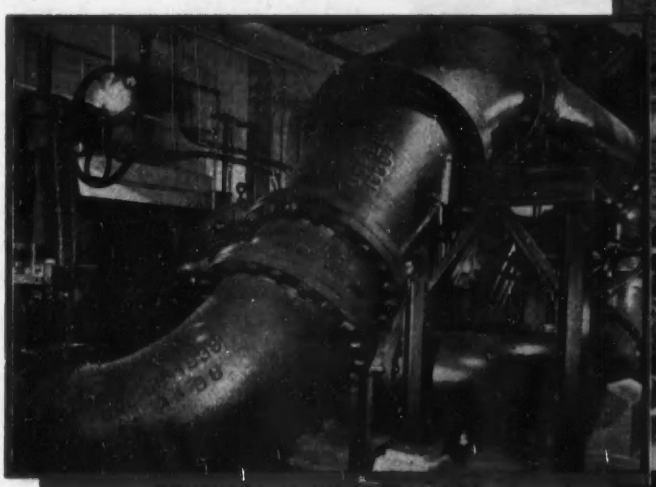
(At right) A river-crossing cast iron water line near Chester, Pa., showing flexible joint assembly.

CAST IRON PIPE

is the word for CAST IRON PIPE

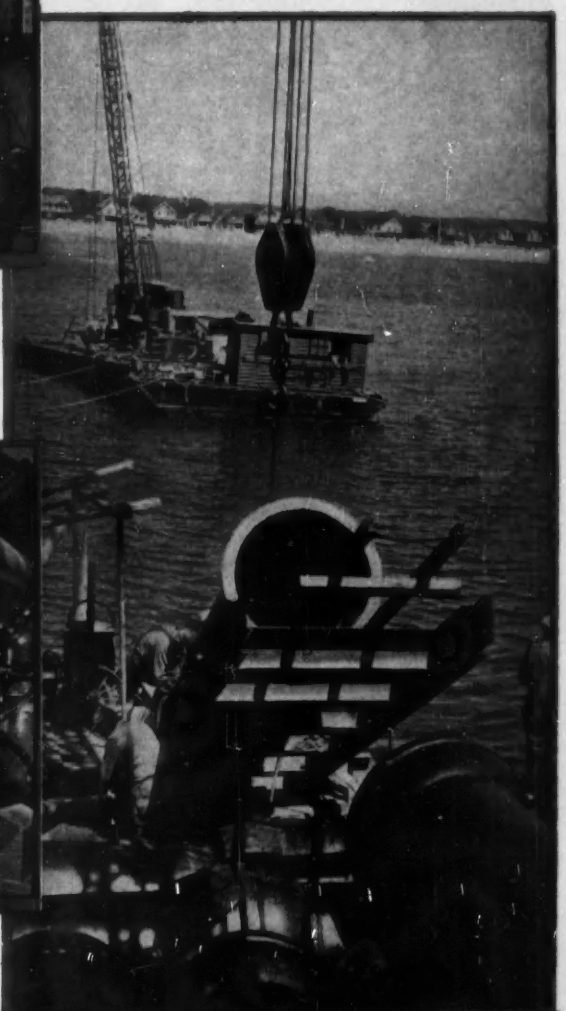


Cast iron pipe and fittings installed in gallery of water filtration plant in Muskegon, Michigan.



Installation of cast iron pipe and fittings in steam plant of a gas and electric utility in California.

Submarine installation of cast iron flexible joint pipe for outfall sewer into Long Island Sound at Fairfield, Conn.



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Rugged, Reliable, Precise

Now featuring:

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(no delicate wires to break)
2. Coated optics, outstanding illumination
and clarity
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5. Leaf-type tangent springs:
smooth-acting, unaffected by dust and dirt
6. Tangent screws impinge on agate bearings

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with rigid tripod and mahogany carrying case.

Plus Variable Power, now standard on all Gurley transits and levels, permits wide range of magnification with *one* eyepiece. Change your magnification to suit weather and light conditions. Built-in haze filter.
Write for "Facts on VP."

GURLEY

W. & L. E. Gurley, Union Plaza, Troy, New York
Established 1845

OBITUARIES

Clarence Moriarty, 66, civil engineer, died in Ketchikan, Alaska, Oct. 14. He went to Alaska before World War II, to direct the engineering of defense airports and highways. One of his jobs was directing initial work at Point Barrow and other north coast points, working in conjunction with the U. S. Navy. His last project was managing the rehabilitation of the Alaska railroad from Anchorage to Fairbanks.

Elias Gelman, 68, Washington, D. C., builder and realtor, died Oct. 17.

Lacy Moore, 67, since 1935 engineer of construction for the Southern Railway System, died Oct. 15 in Washington, D. C. He joined the railroad in 1906. During World War II he handled camp construction for the Department of Defense.

Isaac K. O'Brien, 69, former chief engineer in the Wilmington, Del., headquarters of Atlas Powder Co., died Oct 12, in Ridley Park, Pa. He joined the Atlas engineering department in 1917 and had held assignments at the firm's plants in New Jersey and California.

James E. Conerty, 59, a civil engineer with the New York Central Railroad, died Oct. 24. He retired four years ago after 32 years' service.

Robert J. Gordon, 64, Albany, N. Y., building contractor, died Oct. 23.

William A. Schluter, 48, a field superintendent of construction for A. Bentley & Sons Co., Toledo, Ohio, died Oct. 25.

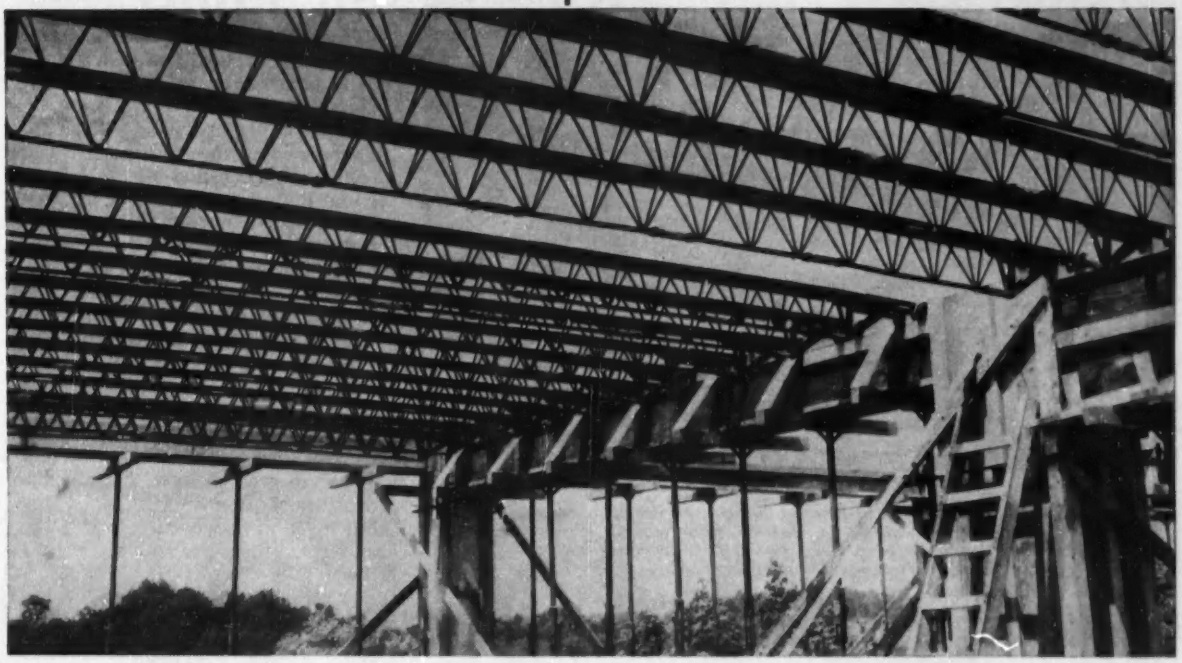
James E. Stewart, 69, former hydroelectric engineer with West Penn Power Co., Pittsburgh, died Oct. 24 in Laguna Beach, Calif. One of his early jobs was laying out Idaho townships for the Reclamation Service. From 1912 to 1923 he was with the Geological Survey, the last three years as chief hydrographer and engineer for the Territory of Hawaii.

Harry L. Dittmer, 69, Trumbull County engineer at Warren, Ohio, died Oct. 24. A former member of the Ohio Highway Department, he had been assistant city engineer at Warren before being elected to the county post in 1936.

James P. Murphy, 50, vice-president and general manager of Sti-Mur Con-

(*Continued on page 84*)

HĪCO* supports | cut shoring costs at CORNELL



Buildings for N. Y. State College of Agriculture and N. Y. State Veterinary College, Cornell University, Ithaca, N. Y.
State Architect: Cornelius J. White. Consulting Architects: Coffin & Coffin, Isadore Rosenfield. Contractor: W. E. O'Neil Construction Co.

new adjustable horizontal form supports save up to 30%!

THE W. E. O'NEIL CONSTRUCTION COMPANY, in specifying HICO supports to shore 400,000 square feet of reinforced concrete slabs, has utilized the unique advantages of these supports to save time, manpower and money in constructing 15 new buildings on the campus of Cornell University. Listed below are some of the main reasons why O'Neil, like other contractors around the world, is turning to HICO supports for the answers to their shoring problems.

ADAPTABILITY
Each HICO form support is available in 2, 3, and 4 ft. sections which, when combined with end pieces, give a complete unit of varying lengths, assuring adaptability as to length of span and type of job. Variety of end pieces assures adaptability to all types of supports.

DEFLECTION COMPENSATION
Tightening of special turnbuckle device at bottom of span controls camber of span which compensates for deflection due to slab weight; assures even, level surfaces.

LIGHTNESS
Weighs 8⅓ lbs. per ft., any section easily carried.

EFFICIENCY
No center supports needed. Engineering design assures tremendous strength and exceptionally high resistance to buckling.

STRENGTH
Carries forms and concrete on clear spans up to 29 ft.

DURABILITY
Each HICO section may be reused 100 times or more.

TIME SAVING
Can be erected and stripped in ⅓ the time needed for ordinary form supports. No special tools needed. HICO form supports are delivered completely assembled and tagged to show exact locations according to plans. Because no center supports are used, work can be continued on floor below, thus cutting over-all construction time.

LOW COST
Savings in construction time naturally cut construction costs. In addition, reuse factor of HICO form supports permits amortization of initial costs over many jobs.

HICO FORM SUPPORTS may be purchased outright or leased with an option to buy. If leased, rental may be applied against purchase price. HICO engineers will be happy to consult with you concerning your particular requirements. In addition they will furnish detailed layout plans showing number and type of HICO form supports required and, if desired, will work with contractor at job site to familiarize him with all phases of the product.

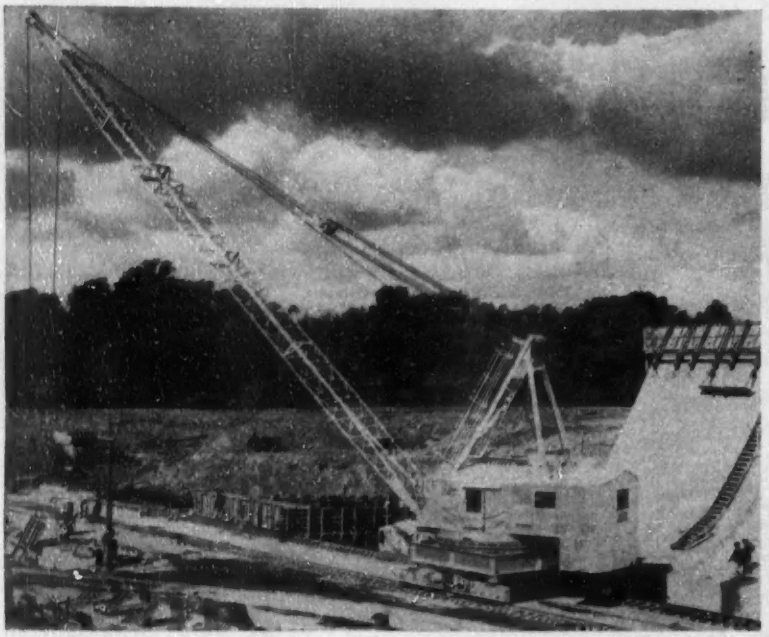
*Trade Mark

HĪCO* ADJUSTABLE HORIZONTAL FORM SUPPORTS

For complete information, technical data and prices, write Dept. E-5, Webrib Steel Corp.

A PRODUCT OF **WEBRIB STEEL CORPORATION**
120 Broadway, New York 5, New York. DIgby 9-1650

NOTICE TO DISTRIBUTORS. There are still some territories open in the United States. Write for details.



Atop a 177,000-cubic-yard concrete spillway, an American Revolver Crane moves to another assignment. This giant workhorse is kept busy days on such tasks as handling huge concrete forms. By night, it pours heavy concrete mix on the dam.

Quenching a 20 billion gallon thirst

Men and equipment work night and day on the new Hoover Dam and Reservoir that will hold 20,000,000,000 gallons to satisfy the thirst of Columbus, Ohio. Backing up Big Walnut Creek, the structure will be 2,525 feet from bank to bank and will reach a maximum height of 115 feet.

It takes men with know-how and the best of equipment to face production schedules of this kind. In all, some 536,000 cubic yards of embankment are needed for the earthen wings. The concrete section is 680 feet long, with a maximum height of 90 feet.

At the heart of the heaviest work is an American Revolver Crane owned by the J. A. Jones Construction Company. Moving along tracks from one assignment to the next, the American's power, maneuverability and the "boardinghouse" reach of its boom have helped keep the project on schedule.

As always, on America's biggest and toughest jobs, you'll find American equipment. Many factual, on-the-job stories of how American equipment increases production and cuts costs for owners are described in the American Crosby Clipper. If your business is such that these stories are of interest to you, mail the coupon below. You will receive the Crosby Clipper regularly without charge.

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American Hoist & Derrick Company
St. Paul 1, Minnesota
Yes, I'd like to get the American CROSBY CLIPPER.
Also, send information on the following equipment:
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Send coupon today!

OBITUARIES

tracting Corp., Buffalo, N. Y., died Oct. 24. He was formerly superintendent of H. F. Stimm, Inc., Buffalo, contractors.

Robert S. Fowler, 72, civil engineer of New York City, died Oct. 23. In 1904 he was an assistant engineer during construction of the Independent Rapid Transit subway line. He also was an engineer on the Ashokan reservoir project and on the Long Island Railroad tunnel under the East River.

F. W. Gartner, Sr., partner of F. W. Gartner Co., Houston, Tex., died Oct. 3. He established his firm in 1923 to serve the Southwest with construction equipment.

Seymour H. Knight, 78, a civil engineer of Penfield, Pa., died Oct. 18. He was special project engineer for Strawbridge & Clothier, Philadelphia department store. He joined the firm in 1928 as an engineer for the mid-town store then under construction.

Otho M. Graves, 72, a civil engineer and chairman of the board of General Crushed Stone Co., died Oct. 15 at Easton, Pa. He had been president of the firm for 20 years. He formerly served as a civil engineering instructor at the University of Pennsylvania and Dartmouth College, and as a professor of graphics at Lafayette College.

Bruce Hoggson, 62, a civil engineer with George F. Young, Inc., died Oct. 21 in St. Petersburg, Fla.

Alfred E. Hirsch, head of the planning and reports branch of the Baltimore district office, Corps of Engineers, died Oct. 15. He formerly served as head of the design and relocations branches at Baltimore, and as head of the land acquisition and reports sections of the Syracuse and Binghamton, N. Y., districts.

Francis Witmer, Sr., 81, retired Philadelphia civil engineer, died Oct. 27 in Pine Beach, N. J. He was head of the civil engineering department at the University of Pennsylvania from 1924 to 1943, and was a consultant with H. C. Baird Co. of New York City from 1919 to 1943.

Earle E. Teeter, 73, retired Federal Power Commission civil engineer, died Oct. 24 in Monticello, Ind. Before joining the Commission in 1911 he was with the Reclamation Service.

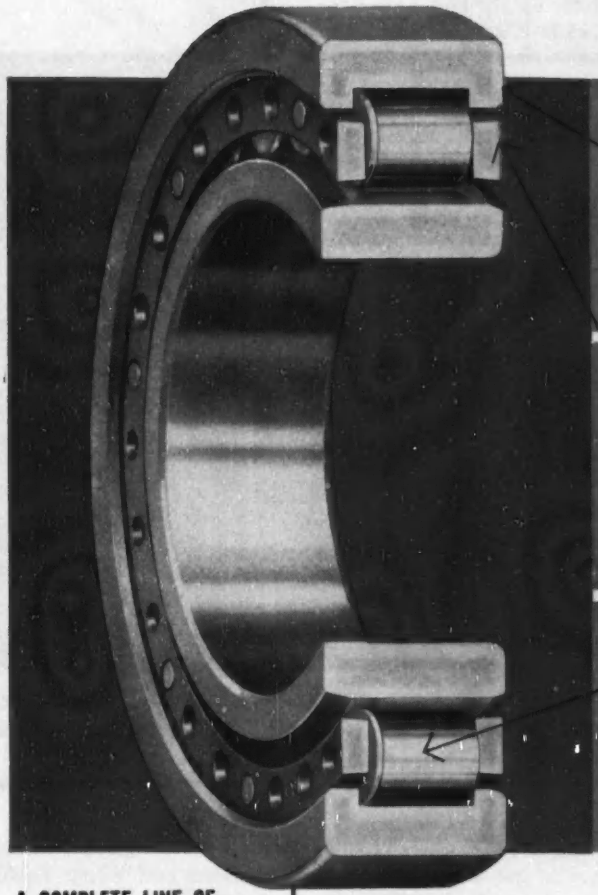
Here's why BOWER straight roller bearings can carry maximum loads—with less maintenance!

The important design features of Bower straight roller bearings shown on this page are just a few of the reasons why these bearings will operate efficiently and economically in your product. Consider these facts, too. Bower straight roller bearings incorporate highest quality materials and workmanship. They have proved themselves capable of standing up day in and day out under maximum loads—with little or no maintenance.

In fact, this is the reason why Bower straight roller bearings are used extensively by leading manufacturers in such fields as automotive, earthmoving, farm equipment and machine tool.

Let a Bower engineer give you full details of the complete Bower line. Call him in while your product is still in the blueprint stage.

BOWER ROLLER BEARING COMPANY • DETROIT 14, MICHIGAN



● *TWO-LIP RACE INCREASES RIGIDITY.* These two shoulders, made parallel, are integral with the outer race. This provides a more rigid, durable construction. Rollers are kept in proper alignment at all times.

● *COMPOSITE STEEL CAGE DOES NOT CONTACT ROLLERS DURING NORMAL OPERATION,* thereby allowing free movement of the rollers between the races. Projections on the inner faces of the rings engage indentations on the roller ends preventing the rollers from dropping out of position when the separable race is removed.

● *PRECISION-BUILT ROLLERS AND RACES ARE MADE TO SUPPORT MAXIMUM RADIAL LOADS.* Only the highest grade steel-alloy is used, and rollers and races are precision ground to give quieter, smoother operation. Running clearance is built in at the time of manufacture.

A COMPLETE LINE OF TAPERED, STRAIGHT AND JOURNAL ROLLER BEARINGS FOR EVERY FIELD OF TRANSPORTATION AND INDUSTRY

BOWER

ROLLER BEARINGS

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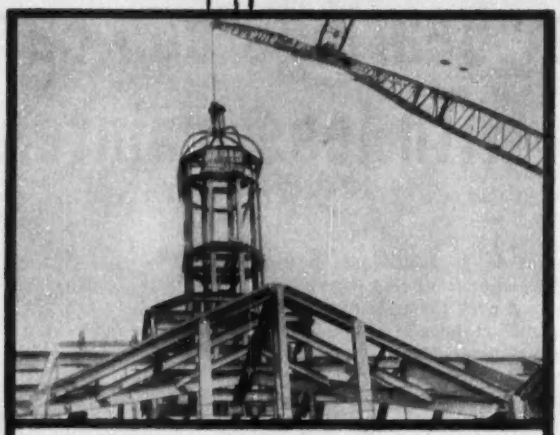
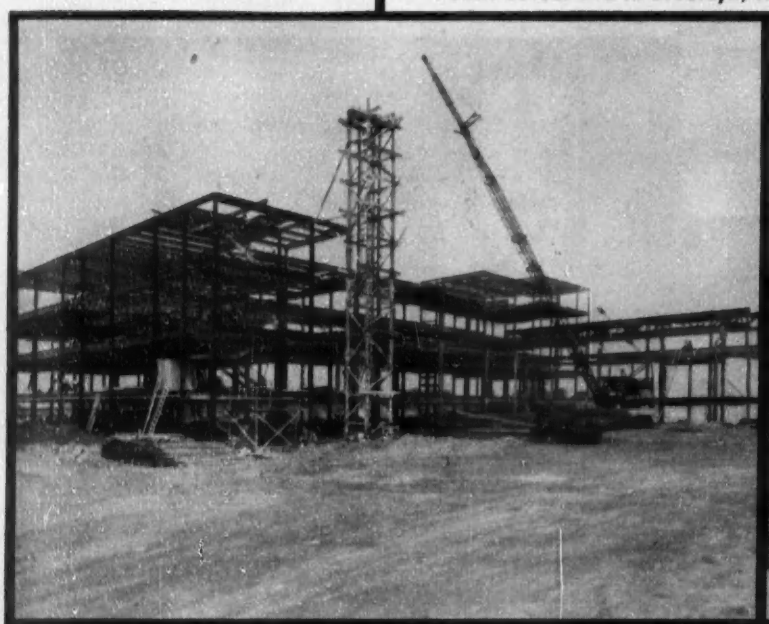
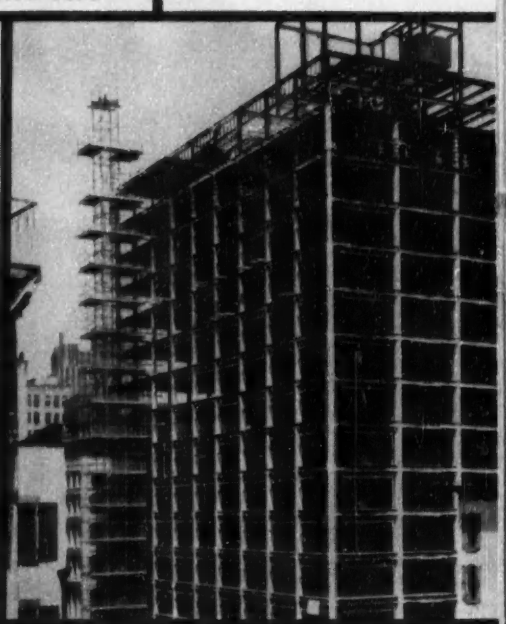
RAISING STEEL WIT



Dreier Structural Steel Co., Inc. raising 400 tons of steel with safety know-how for Public School 195 in Brooklyn, New York.



Dreier plans and tackles every job safely. Here 900 tons of steel are placed for the Queens College Science Building, New York City.



Dreier Structural Steel Co., Inc. erects 2700 ton the Home Office Building of the State Insurance

It's safe to say that steel beams can dent and damage the average man! You've got to be safe and certain and wise when you're raising tons of steel to the skies!

For over 15 years the Dreier Structural Steel Company, Inc., of Long Island City, New York, has been an American Mutual policyholder.

During this period they've recognized that nothing takes the place of foresight and planning if you want to get work done without accidents and injury. Right down through the organization from company officers through superintendents, foremen and pushers, good management and trade skills are known to be the key to safe work. Suggestions and advice of American Mutual safety engineers find a ready ear in this organization. Result: An outstanding accident prevention record!

THOUT RAISING HOB!

(It's an every-day job for Dreier)

by Mr. Friendly

s of steel for
Fund, N. Y. C.

P.S. If you're interested in a service that can help reduce your own operating costs, accidents and premiums, and bring you substantial savings through dividends, write for your free copy of "Foremanship and Accident Prevention in Construction," American Mutual Liability Insurance Company, Dept. O-131, 142 Berkeley Street, Boston 16, Mass.

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Thorough knowledge and thorough care of minutest detail were essential to the designing of the sturdy, accurate Paragon® Drafting Machine. Draftsmen prefer the Paragon, because it is time-saving and work-sparing, because it is reliable, easy to operate, and because they don't have to treat it with kid gloves. The Paragon Drafting Machine increases drafting room efficiency enormously, and effects substantial economies.

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LEGAL

Misrepresentation as to Prevailing Rate of Wages

Bidders on a government contract were advised that the prevailing rate for laborers at the location where the work was to be performed was 85 cents per hour. The contractor to whom the job was awarded, after a reasonable investigation concluded that this information was correct and based his bid in reliance upon this information.

After the contract was entered into and performance started, the Department of Labor determined that the minimum wage rate for that area was $1.00 per hour. This ruling was made retroactive to a date prior to the time the contract was entered into. The contractor then brought an action to recover the increased cost of the work resulting from the raising of the minimum wage rate and obtained a recovery.[1]

The court in its opinion stated: "Plaintiff [contractor], although it investigated the labor situation, did not discover the erroneousness of the defendant's [government's] statement and relied upon the representation contained in the specifications. It is therefor entitled to recover the increased labor costs resulting from defendant's [government's] misrepresentation. Albert and Harrison, Inc. v. United States, 68 F. Supp. 732, 107 Ct. Cl. 292."

(1) Poirier & McLane Corp. v. United States, 120 F. Supp. 209, United States Court of Claims, April 6, 1954.

Right to Make Changes

A construction contract contained the following provisions: "The engineer reserves and shall have the right to make such changes, from time to time, in the plans, the character, or quantity of the work as may be considered necessary or desirable to complete fully and acceptably the proposed construction in a satisfactory manner provided such alterations do not change the total cost of the project, based on the originally estimated quantities and unit prices bid, by more than 25 percent, and provided further that such alterations do not change the total cost of any major item, based on the originally estimated quantities and the unit price bid, by more than 25 percent. (A major item shall be construed to be any item, the total cost of which is equal to or greater than 10 percent of the total contract

(*Continued on page 92*)

EXCESSIVE END BIT WEAR CAN BE STOPPED

One example of the 150 types of end bits manufactured by ESCO, this Shasta type end bit is used on dozers for punching out work an difficult terrain.

ESCO End Bits are cast of special alloy steel for longer life on any job!

Why tolerate excessive end bit wear and downtime? Economy minded operators of dozers, scrapers and graders are finding *ESCO* End Bits lick excessive wear and last longer on either rocky or abrasive operations.

ESCO End Bits are *cast* of special alloy steel, designed for maximum shock and wear resistance under *any* dozing conditions. And because *ESCO* End Bits are *cast, not* rolled or forged, metal thickness and wear resistance are located where they are needed most. Blade weight and shape are correct for maximum bite, and wear. For example, note the shape and distribution of metal on the *ESCO* Shasta type end bit illustrated above.

ESCO makes 150 types of end bits to fit dozers, scrapers, or graders of all major manufacturers and they cost no more than ordinary end bits. Keep *your* production higher with *ESCO* End Bits. For details, see your nearest *ESCO* dealer, or write direct.

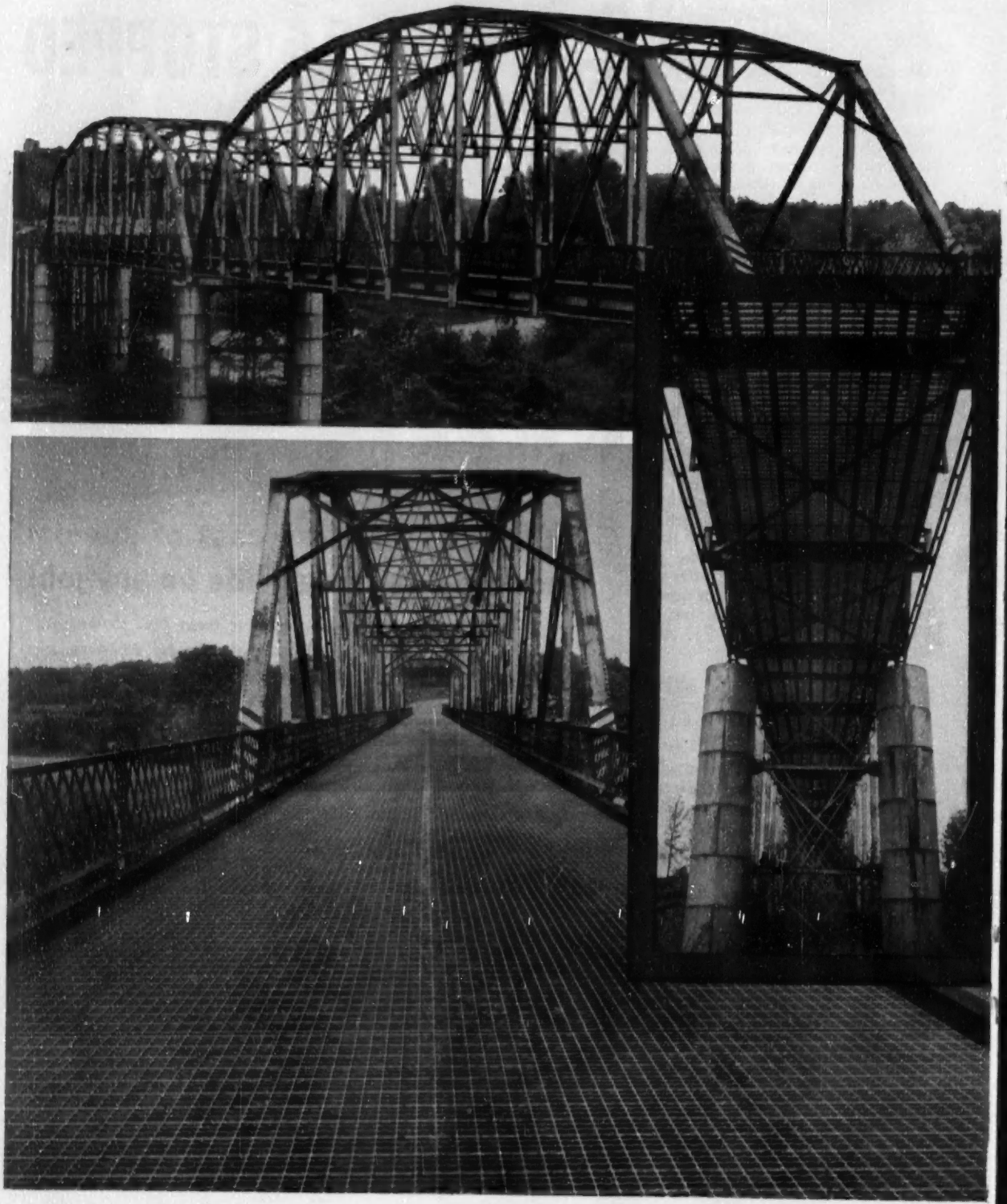
ESCO

Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Oregon; Salt Lake City, Utah. In Canada: Vancouver, British Columbia, and Toronto, Ontario.

ELECTRIC STEEL FOUNDRY CO.

2142 N. W. 25th AVENUE, PORTLAND 10, OREGON — 712 PORTER ST., DANVILLE, ILL.

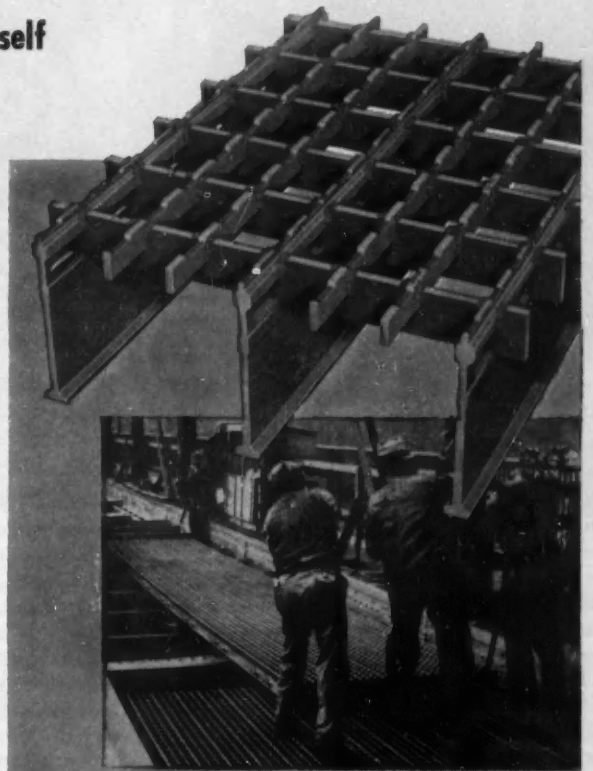
This 600 ft. bridge



refloored in 5 days with

USS I-BEAM-LOK

Lightweight open steel flooring will save enough in replacement costs to pay for itself in about 15 years!



WHEN fire destroyed the wood flooring on this thirty year old bridge located near Flat Top, in Jefferson County, Alabama, the engineering department of the county was faced with a real problem. And, time was *all* important, for the bridge was on a school bus route. *A quick replacement of the burned out floor was a must.* Something more permanent than the old floor was desirable. Yet, cost had to be a factor in any decision.

After considering many types of bridge flooring, USS I-Beam-Lok was chosen for the 600′ x 18′ roadway. *10,800 sq. ft. of this modern open steel flooring was installed and the bridge re-opened to traffic in just 5 days!*

Furthermore, on the basis that 5″ I-Beam-Lok weighs 18.8 psf. as against 30 psf. for the old wood flooring, the use of the more permanent lightweight steel flooring resulted in a savings of 120,960 lbs. deadweight.

And, while the cost of the new steel floor was almost 3½ times that of wood, I-Beam-Lok will easily save enough in replacement and maintenance costs to pay for itself in about 15 years . . . because the wood floor would have to be replaced every 4 or 5 years.

Takes heavier loads . . . provides smoother, safer riding—

USS I-BEAM-LOK OPEN STEEL FLOORING can be erected easily and speedily with a minimum interruption of traffic to produce a smooth-riding, skid-resisting, self-cleaning, fireproof, and long-wearing surface. Available in units measuring 6′2″ in width and up to 49′ in length, this lightweight, all-steel flooring can be applied directly to stringers on spans up to 4′ centers to permit H-20 loadings. It does not require secondary supports.

For more information about the time-and-money-saving advantages of lightweight steel flooring in bridge construction, contact the sales office nearest you.

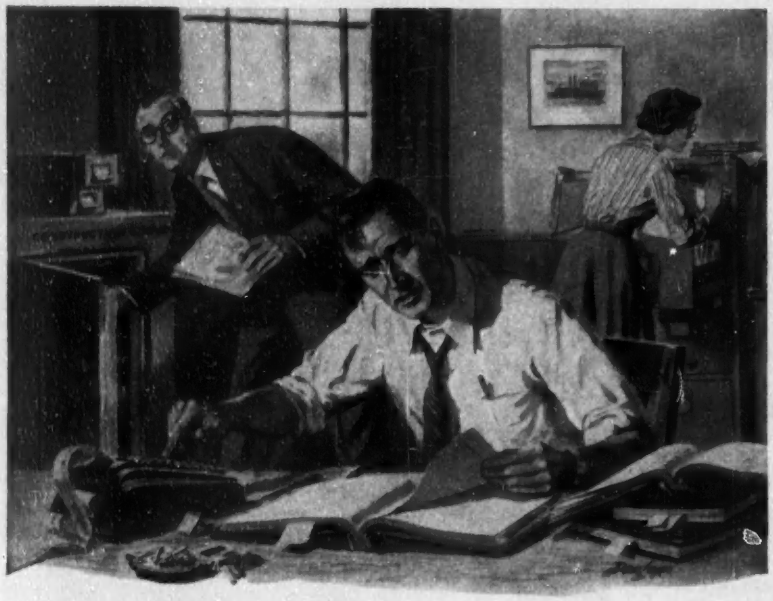
UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
AMERICAN BRIDGE DIVISION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS I-BEAM-LOK

USS

4-2098

UNITED STATES STEEL



$39,000 missing

. . . and so was one of our trusted employees!

(Based on Company File #130975)

We thought ourselves pretty good judges of character. But how wrong we were!

You see, we hired a woman for a job that included handling cash and doing bookkeeping. She was married. Had three children—all in school. Last job in the East.

She seemed capable and we had no reason to question her honesty, so we took her on. That turned out to be a mistake.

A routine audit eight months after she came with us disclosed many irregularities in her accounts. We started an investigation. But the woman and her family suddenly disappeared.

It didn't take long to find out why. She had been systematically stealing funds almost from the first day she started work. All told, in just seven months on the job, she had taken over $39,000!

Stories like this are not unusual. Pick up your newspaper, and there's a good chance you'll find one like it.

The employer never suspects—*until too late*. He knows most employees are honest. He relies on his judgment in picking people for positions of trust. But sometimes he picks a "bad apple."

Even so, he need not lose money because of employee dishonesty. A Hartford Blanket Fidelity Bond offers solid protection against that risk. It covers *all* employees. It pays for losses of money, equipment or other company property stolen by *any* of them.

Your Hartford Accident and Indemnity Company Agent or your insurance broker will be glad to give you full details on request.

Year in and year out you'll do well with the

Hartford

Hartford Fire Insurance Company • Hartford Accident and Indemnity Company
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price, computed on the basis of the proposal quantity and the contract unit price.) Should it become necessary, for the best interests of the owner, to make changes in excess of that herein specified, the same shall be covered by supplemental agreement."

"The engineer may, in writing, order omitted from the work any item other than major items found unnecessary to the project and such omission shall not be a waiver of any condition of the contract nor invalidate any of the provisions thereof. Major items may be omitted by supplemental agreements."

During the progress of the work, the engineer issued a change order which eliminated about 20 percent of the work. The contract in question was one for the construction of runways and taxiways of a city-owned airport, and the part of the work that was eliminated created a gap between the area where the work was being done by the contractor and the existing runways on the airport. Thereafter, the municipality, entered into a contract with another contract to perform the part of the work that had been eliminated from the original contract.

The first contractor brought an action to recover the damages sustained by the elimination of part of the work, claiming that the elimination of that part of the work was unnecessary and constituted a breach of the contract.

The court sustained the contractor's contention, holding that the contract as a whole, limited the right of the city to make only such changes "as may be considered necessary or desirable to complete fully and acceptably the proposed construction in a satisfactory manner." The court sustained the contractor's contention that the elimination of 20 percent of the work was not necessary or desirable.[1]

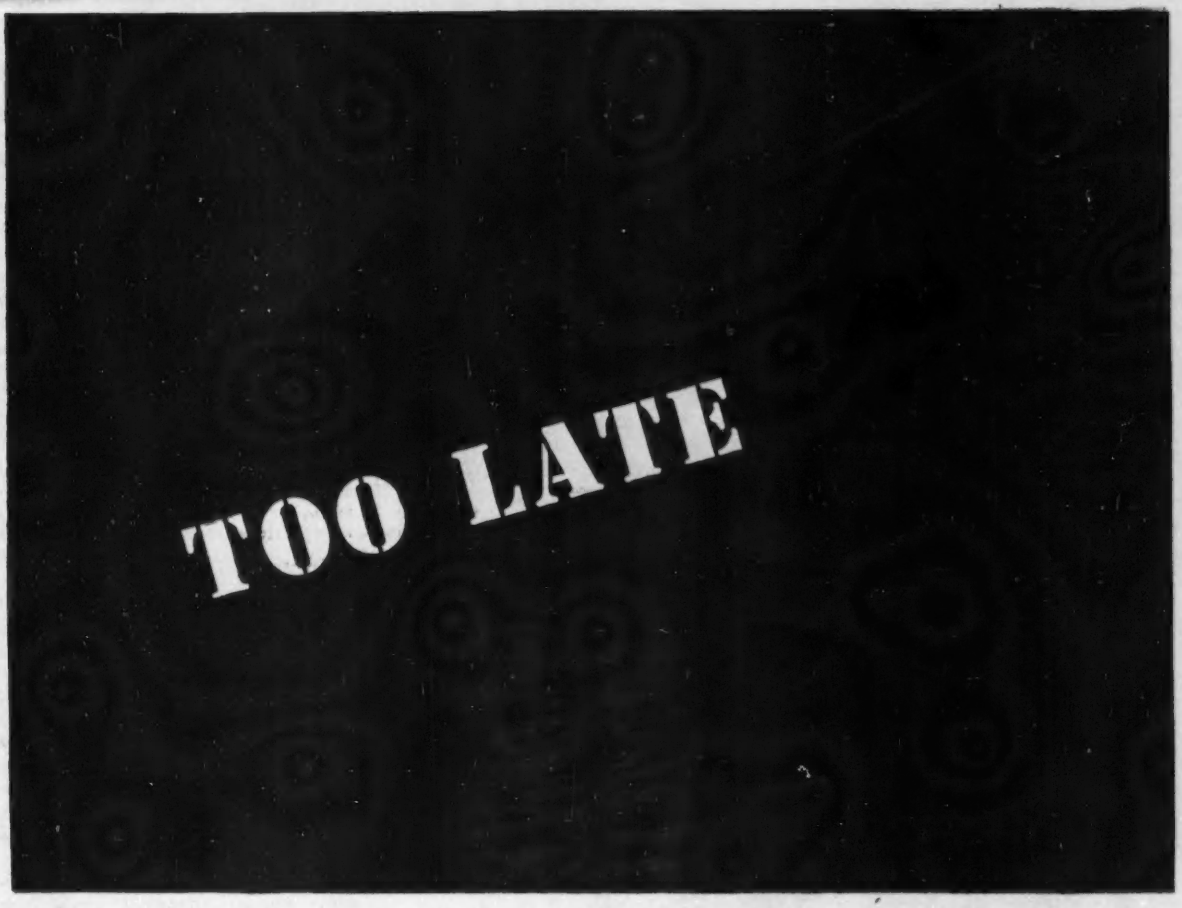
(1) Hensler v. City of Los Angeles, 268 P. 2d 12, District Court of Appeal of California, March 23, 1954.

Authority of Architects

A contract was entered into for the construction of an annex to an existing building. As the work progressed, numerous differences arose between the owner and the contractor as a result of which the contractor refused to proceed with the work and abandoned it. Thereupon the owner employed another contractor to complete the work.

The original contractor then brought an action to recover what he

(Continued on page 94)



This fire was finally put out—but too late to avoid heavy loss of property.

DON'T be too late! There is a moment, in every fire, when a little water will do what an engine brigade may not be able to do ten minutes later. Practically every fire can be kept from turning into a disaster, by stopping it at the start. The sure way of doing that is the *automatic* way—with a Grinnell Automatic Fire Protection System.

Grinnell Sprinklers stop fire at its source, wherever and whenever it strikes, night or day, with automatic certainty. The experience of 76 years proves this. Now, with Grinnell Automatic *Spray* Sprinklers, you get even greater protection against fire. *Less water puts out more fire.* There is a Grinnell Fire Protection System for every fire hazard, and for every type of location.

Fire strikes without warning, and it may be later than you think. Get in touch with your Grinnell engineer, and let him advise you on the particular Grinnell System to protect *your* property. Grinnell Company, Inc., 258 West Exchange Street, Providence, Rhode Island.

Here is a partial list of the different fire protection systems which Grinnell can engineer to fit your particular need . . .

- **Standard Wet-Pipe Sprinkler System.** Where temperatures remain above freezing.
- **Standard Dry-Pipe Sprinkler System.** Where temperatures may go below freezing.
- **Multitrol System.** For faster application of water in extra hazardous areas.
- **Textile Opener Room System.** For flash fires in opened cotton bales.
- **Multifyre System.** For fires in heavy as well as in medium oils.
- **ProtectoSpray System.** For fires in light and medium oils—many special hazards.
- **ProtectoFoam System.** For fires in gasoline and other highly flammable liquids.
- **C-O-Two System.** For highly flammable liquids in enclosed spaces.

GRINNELL PROTECTION AGAINST EVERY FIRE HAZARD

Manufacturing, Engineering, and Installation of Automatic Sprinklers Since 1878

"G-E 2-Way Radio takes terrific punishment!"

DISPATCHER, Frank Campsen, has complete control of all deliveries. He uses General Electric 2-way radio constantly for initial or rerouting instructions to trucks on the road.

TRANSIT-MIX OPERATOR, Roscoe Fowler, picks up G-E handset, reports a completed job. If Fowler has a delay in unloading or mechanical failure, instant radio contact helps solve the problem.

2-WAY MOBILE RADIO

FREQUENCY STABILITY & SELECTIVITY *guaranteed for life!*

"We've often wondered," says the Spartanburg Concrete Company of South Carolina, "how our G-E 2-way radio system can take the beating we give it." The answer is simple. General Electric builds this communications equipment to deliver the same solid service you expect from a bulldozer . . . designs it specifically for construction work!

Why not answer your need for instant communication by planning a G-E 2-way mobile installation. *With radio* you'll save time and money. *With G-E* you have the *bonus* advantage of operating equipment that is famous for long-life . . . extremely low maintenance. Call the G-E Communications Counselor at a local office or mail this coupon today!

SEND FOR FREE INFORMATION!

General Electric Company, Section X22114-18
Electronics Park, Syracuse, New York

Please send bulletin ECR-47 showing how General Electric 2-way radio can aid me in the construction business!

NAME.....COMPANY.....

ADDRESS.....

CITY.....STATE.....

GENERAL ELECTRIC

LEGAL

claimed was allegedly due him under the contract. The owner counterclaimed for damages alleged to have been sustained by the contractor's breach of contract in abandoning the work.

The trial court found as a fact that the contractor had substantially performed the contract and his abandoning the work was justified by the acts of the owner. The judgment was affirmed on appeal.[1]

The judgment allowed for the work done was the contract price less the amount expended by the owner to complete the work. One of the points involved in the litigation was the court's limiting of the contractor's liability for the cost of installing the heating system to $2,000. The cost to the owner of doing this part of the work was considerably more than that amount. The reason for doing this was that at the time the contract was entered into, the plans and specifications for doing this part of the work were not available to the contractor and his bid was submitted and the contract entered into in reliance upon the architect's representation that the cost of doing this part of the work would not be in excess of $1,800 or $2,000.

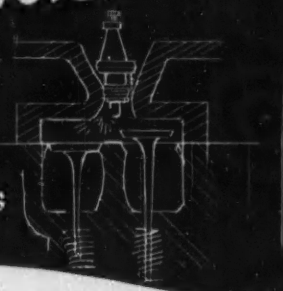
The owner claimed that this evidence was an attempt to modify the terms of a written contract by oral testimony. As to this phase of the litigation, the court, in its opinion, stated: "This is not a case of modification of a contract, but of a bid and contract made and conditioned upon a representation by appellant's [owner's] architect and binding upon her. Boynton v. Johnson, 1912, 68 Wash. 370, 123 P. 522; Sando v. Kalberg, 1926, 138 Wash. 247, 244 P. 576; McGregor v. First Farmers'-Merchants' Bank & Trust Co., 1935, 180 Wash. 440, 40 P. 2d 144."

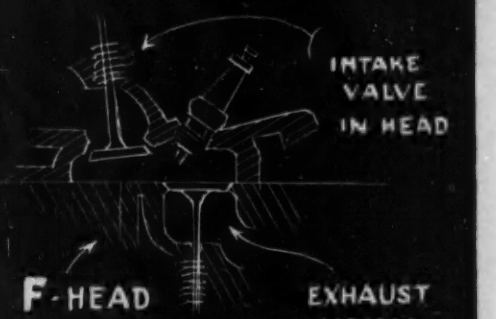
The owner claimed that her agreement with the architect was such that he had only a very limited agency. As to this phase of the litigation, the court stated: "Whatever may have been the limitations on the architect's authority as between appellant [owner] and himself, West [contractor], until it knew of such limitations, had a right to assume that the usual relationship existed between owner and architect. Sando v. Kalberg, 138 Wash. 247, 244 P. 576."

(1) West, et al. v. Jarvi, et al., 266 P. 2d 1040, Supreme Court of Washington, Feb. 16, 1954.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

2 EFFICIENT HEAD DESIGNS



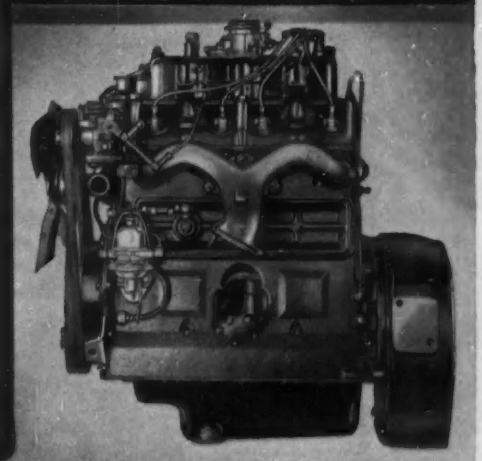


"JOHN" WILLYS *

Engine Chalk Talk

I don't know of another engine manufacturer who can offer the versatility that these two Willys head designs make available. Basically, the "L" head has plenty of power and excellent torque at medium speeds. It is a **rugged** Willys design with plenty of power uses. The "F" head develops even **more** power . . . and smoothly . . . right up to maximum rpm. Its torque curve is almost constant at all speeds. We know this engine will find many applications in equipment where extra lugging power is desirable.

* Design Department, Willys Motors, Inc.



Willys POWER GIANT

Industrial Engines and Power Units

Willys POWER GIANTS have been designed especially for industrial uses. They are based on the world famed Willys engine designs with "proven-in-action" performance and features.

INDUSTRIAL ENGINES and POWER UNITS

Model	Cyl. and Head	Displ. Cu. in.	Range Max. bhp	Range of speed
Jeep	4 L	134.2	22 - 60	1200 - 4000
Hurricane	4 F	134.2	22 - 70	1200 - 4000
Lightning	6 L	161.0	28 - 75	1200 - 4000
Giant Hurricane	6 F	161.0	28 - 90	1200 - 4200

SEND FOR POWER GIANT BULLETINS
4 Cylinder Engines
6 Cylinder Engines
Power Units

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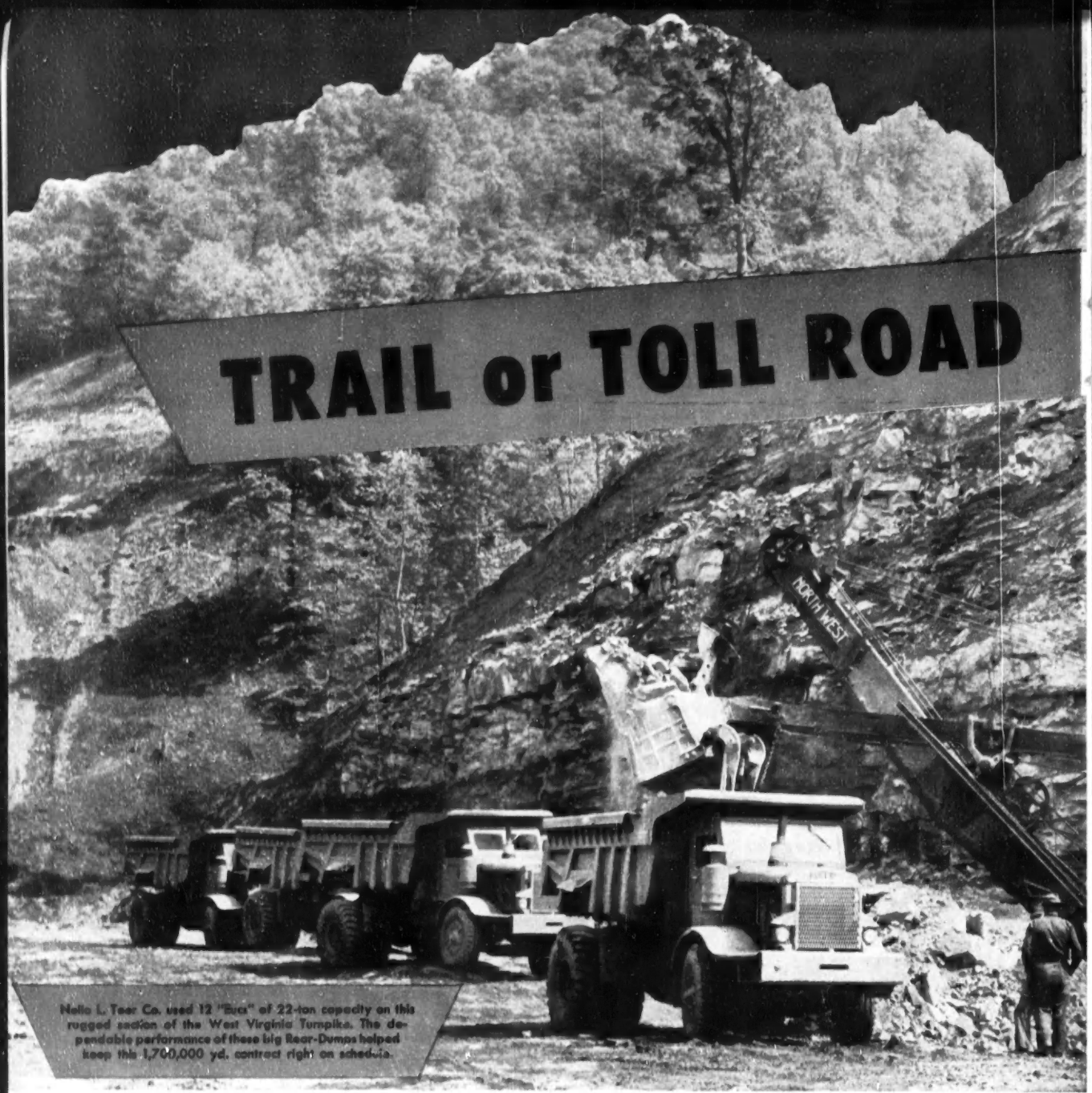
DISTRIBUTORS: unusual sales opportunities available. Write today.


TRAIL or TOLL ROAD
NORTHWEST
Nello L. Teer Co. used 12 "Eucs" of 22-ton capacity on this rugged section of the West Virginia Turnpike. The dependable performance of these big Rear-Dumps helped keep this 1,700,000 yd. contract right on schedule.

Whether the job is building a mountain trail, a farm to market road or a modern super-highway, there is a size and type of Euclid earth moving equipment to do the job fast and economically.

For example, Rear-Dump "Eucs" for hauling rock and heavy excavation range in payload capacity from 10 to 50 tons . . . Bottom-Dumps carry heaped loads of 15 to 30 cu. yds. of earth, gravel and free flowing material . . . self-powered Scrapers pick up and haul heaped loads of 9 to 21 cu. yds. (7 to 18 yds. struck). And for fast mobile loading of large capacity hauling equipment on big yardage jobs, the Euclid Loader is unequalled for low cost production.

Road contracts during the next 10 years will be awarded at a record rate. They'll go to contractors with equipment that does the job faster and at lowest cost. Your Euclid dealer will be glad to provide helpful facts and figures . . . get in touch with him soon.

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EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

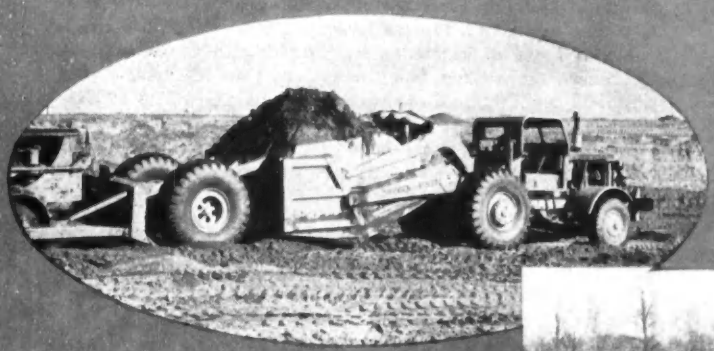
FOR MOVING EARTH, ROCK, COAL AND ORE

GM GENERAL MOTORS

"Eucs" do the job!

On the Ohio Turnpike "Eucs" outnumbered competitive rubber-tired equipment by better than 4 to 1 and were on practically every section of this 241 mile job. In this photo, a Bottom-Dump with a heaped load of 18 yds. pulls away from a "Euc" Loader for a long haul to the fill. Two Loaders and 16 Bottom-Dumps made the dirt fly for D. W. Winkleman Co. on this eastern section.

Jamaica's Public Works Department uses a fleet of seven 10-ton "Eucs" for construction and maintenance. In the illustration, tractor loaders teamed up with Model UD Euclids in close quarters at a side hill cut during construction of a road along the coast.



In California, Fredericksen & Kasler used 4 "Eucs" to move clay overburden and wet sand fill material for an overpass project on U. S. Highway 99. Unusually high job availability and long blade life were important factors in maintaining low yardage cost and high production for this contractor.

PERFORMANCE AND HIGH JOB AVAILABILITY HAVE MADE "EUCS" THE PREFERRED EQUIPMENT OF EARTH MOVING CONTRACTORS

On the New York Thruway contractors used all types of Euclid equipment for the wide range of job conditions. On a 2½ million yd. contract near Kingston, John Arbario, well known Poughkeepsie road builder, used 7 Twin-Power Scrapers on a particularly tough section of the job. The Twins' tremendous power and traction kept the job going when other equipment was stymied . . . they moved loads of 17 bank yds. on grades up to 20% and had power to spare.

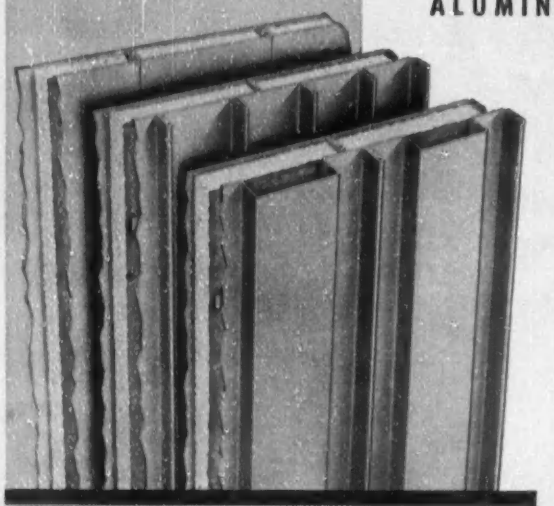
For small road grading jobs and other projects where speed and exceptional maneuverability are important, the Euclid S-7 Scraper is the answer. It is powered by a 138 h.p. engine, has a struck capacity of 7 cu. yds. and makes a non-stop turn in 26 feet.

Easy loading and fast travel speed of "Euc" Scrapers paid off for Coon Construction Co. on this section of the Ohio Turnpike. Top extensions on the six "Eucs" increased the struck capacity to 18.5 cu. yds. Complete cycle time—load, haul, dump and return—was only 3.6 minutes for the 2000 ft. round trip with heaped loads of about 20 yds.

INSULATED METAL WALLS

for INDUSTRIAL and COMMERCIAL BUILDINGS

ALUMINUM, STAINLESS or GALVANIZED STEEL

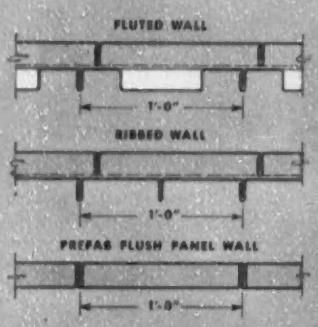


New, modern buildings with bright metal exteriors of Aluminum or Stainless Steel are appearing all over the country . . . complete industrial plants—like the one illustrated below, commercial buildings, schools, powerhouses, and numerous other types of special purpose structures have been built with Mahon Insulated Metal Walls. Architects and owners alike were quick to recognize the low-cost permanence and the remarkable thermal properties provided in this light weight curtain wall construction. They also recognized the cumulative advantages deriving from reduced construction time . . . buildings can be quickly enclosed with Insulated Metal Walls—even under low temperature conditions. Mahon Insulated Metal Walls are available in three distinctive exterior patterns in Stainless Steel, Aluminum, Galvanized Steel, or Enamel Coated Steel. Mahon "Fluted" and "Ribbed" walls can be field erected up to sixty feet in height without a horizontal joint—a feature of Mahon walls which is extremely important in buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information, or write for Catalog B-55-B.

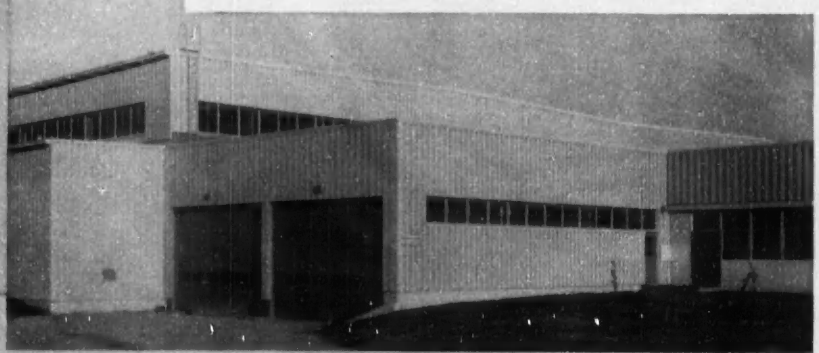
THE R. C. MAHON COMPANY

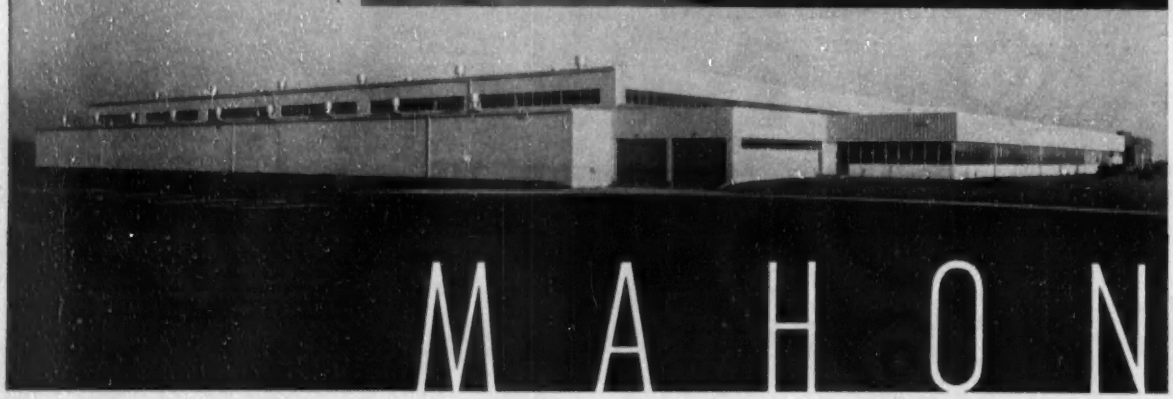
Detroit 34, Mich. • Chicago 4, Ill. • Representatives in All Principal Cities

Manufacturers of Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles and Automatic Underwriters' Labeled Rolling Steel Fire Doors and Fire Shutters.



The Over-all "U" Factor of the various Types of Mahon Insulated Metal Walls is Equivalent to or Better than a Conventional sixteen inch Masonry Wall.





MAHON

BOOKS

Early American Roads

HISTORIC AMERICAN HIGHWAYS—Part II of Public Roads of the Past—By Albert C. Rose. 183 pp. Published by the American Association of State Highway Officials, 917 National Press Bldg., Washington 4, D. C. $4.00.

The historical value of this book can hardly be overstated. In concise form, it brings together the best available information about the early highways in this country, including well prepared maps. This record is supplemented by an extensive bibliography of the source material for each of the many sections about individual highways, such as the Oregon Trail, into which the book is divided. Also covered are many developments of importance to highway progress, such as the coming of the automobile and the first federal aid to roadbuilding.

There are 16 full-page reproductions of old maps showing highways beginning back in 1758 in addition to the small maps in sections relating to individual roads.

Most or all of the material brought together in this book has appeared in past issues of "American Highways," the official publication of the American Association of State Highway Officials. It supplements similar material about highway development of the Old World, which later was assembled in pamphlet form and published by the AASHO under the title "Public Roads of the Past: 3500 B.C. to 1800 A.D. (ENR Jan. 22, 1953, p. 62). That pamphlet can be obtained from the association for $3.00.

The whole compilation was made by Albert C. Rose, historian of the Bureau of Public Roads, partly as a labor of love and partly as the basis for historical displays of the bureau beginning with those prepared for the Sesqui-centennial Exposition in Philadelphia in 1926.

HIGHWAY ENGINEERING—By the late Laurence I. Hewes and Clarkson H. Oglesby. 628 pp. John Wiley & Sons, New York 16, N. Y. $8.00.

To serve as a text for the advanced engineering student and as an aid to the practicing highway engineer, this book is a comprehensive present-day counterpart to Hewes' American Highway Practice, first published in 1942. Laurence Hewes was one of the foremost highway engineers in the U.S., having joined the Bureau of Public Roads in 1920 as chief of Western

(Continued on page 100)

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VIBER VIBRATOR selected for concrete compaction in crucial area to produce maximum density at the point where concrete stress is critical.

Vibration essential in crucial area around prestressing cones

THE RICHFIELD OIL BUILDING ANNEX in Los Angeles is the largest monolithic prestressed concrete office building in the United States today. According to Albert C. Martin and Associates, architects and engineers on this project, prestressed construction was adopted because of design problems resulting from the matching of 10 foot 3 inch floor to floor heights in the existing building. With 8 feet the minimum clearance height, prestressing not only made possible the matching of the high velocity air conditioning ducts, and at the same time installation of recessed lighting, but allowed a 46 foot clear span for flexibility in partitioning of office space. Because of the lack of room for erection equipment the new structure was cast in place.

THE CONGESTION of prestressing cables and cones at the point of maximum load requires top performance from vibration equipment.

• **Concentration of load** on the cable anchorage by stressed cables makes the area around the cones the most crucial area. Because patching of concrete in this area of cast-in-place prestressed concrete could scarcely be tolerated, consolidation of the concrete in this area is particularly important.

• **Guy F. Atkinson Company,** contractor, used Viber 1-5/16 and 1-3/4 inch diameter vibrators. Model E electric motor driven vibrator 1-3/4 inch diameter was used at the base of cone, or where spacing would allow, the 1-5/16 inch diameter Model 26 was used between cones as well as at the base of cone.

For further information on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, Dept. 67, 726 South Flower Street, Burbank, California.

VIBER

CONCRETE VIBRATORS SINCE 1931

BOOKS

Headquarters and remaining with BPR until his death in 1950. As his earlier book, in 1942, represented the most authoritative presentation of highway engineering at the time, it is particularly significant that the present work was reviewed and criticized in detail by 31 specialists of the Bureau of Public Roads as a tribute to Dr. Hewes.

Unlike a good many other books in the highway field, this volume places small attention on construction practices and gives its special emphasis to design and principles, the reasoning being, and rightly so, that highway construction can be seen at first hand almost any place by those interested.

The text presupposes some knowledge of dynamics, fluid mechanics and engineering economy. Although the work is full and inclusive, a short-course perusal of highway engineering can be taken from the book since more advanced and detailed subject matter has been set in smaller type. This material can be omitted without destroying the continuity of presentation.

Chapters on Highway Economy, Highway Finance and Rights of Way are treated more fully and with greater attention to legal and economic detail than in any other book to date on the field of highway engineering as a whole.

New Engineering Books

ESTIMATING PRODUCTION AND CONSTRUCTION COSTS—By Louis Dallavia. 257 pp. The Dallavia Co., 2110 Elmen, Houston 19, Texas. $15.00.

TIME-SAVER STANDARDS—A Manual of Essential Architectural Data—Third Edition. Compiled by Architectural Record. 888 pp. The F. W. Dodge Corp., 119 W. 40th St., New York 18, N. Y. $12.50.

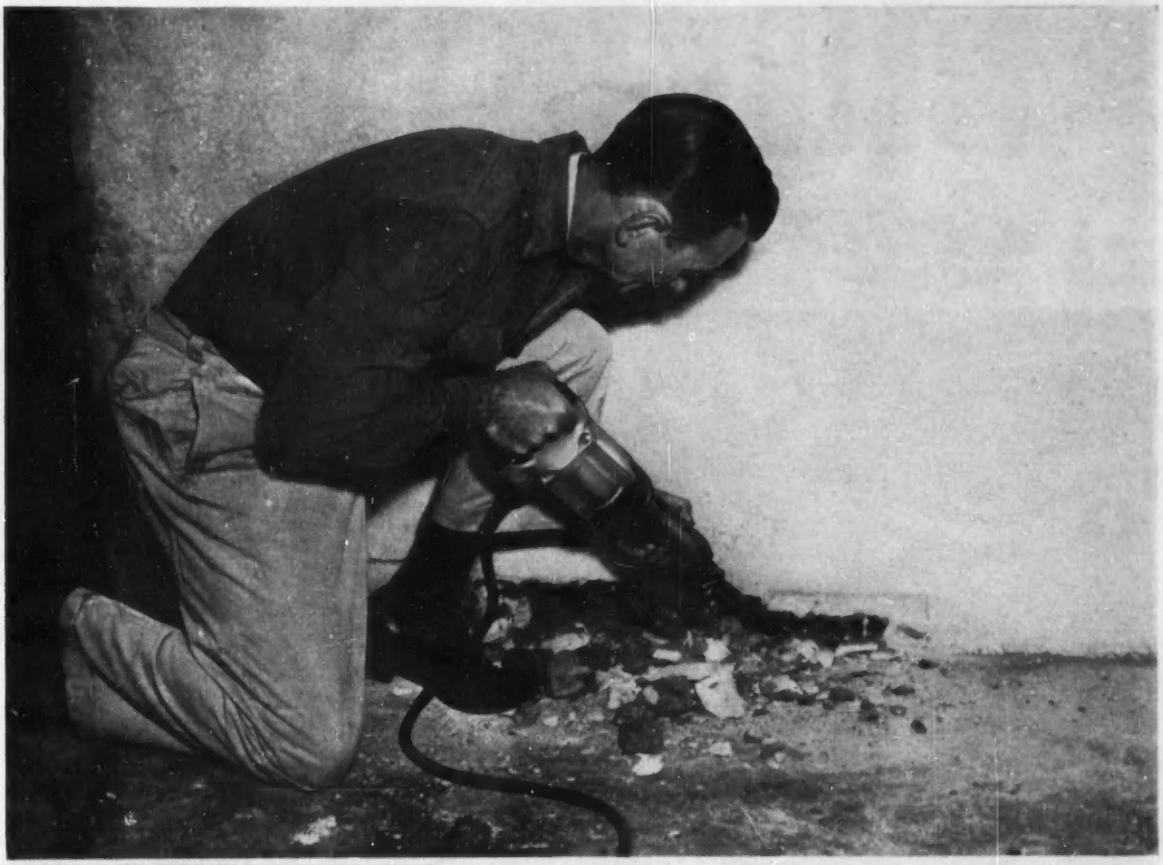
TECHNIQUES OF PLANT MAINTENANCE AND ENGINEERING—Proceedings of the Technical Sessions at the Fifth National Plant Maintenance and Engineering Show. 291 pp. Clapp & Poliak, 341 Madison Ave., New York 17, N. Y. $7.50.

WATER SUPPLY AND WASTE-WATER DISPOSAL—By Gordon Maskew Fair and John Charles Geyer. 973 pp. John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. $15.00.

WATER CONDITIONING FOR INDUSTRY—By Sheppard T. Powell. 548 pp. McGraw-Hill Book Co., 330 West 42nd St., New York 36, N. Y. $9.00.

AMERICA'S RESOURCES OF SPECIALIZED TALENT—The Report of the Commission on Human Resources and Advanced

(*Continued on page* 103)



New BOSCH Builder's Hammer

GERMANY

with power rotation... weighs only 21 lbs.

Here's a new electric hammer . . . imported from Germany and sold exclusively by Homelite . . . that will speed work and cut your costs. Weighing only 21 pounds . . . much lighter than other hammers . . . this compact, rugged tool will smash, cut, chisel, channel and drill through concrete, brickwork or stone *fast*. What's more, with its unique power rotation feature it needs no hand crank drive for drilling. That's right! It's both an impact and rotating tool. Easy to operate . . . even in close quarters . . . this low cost hammer is available with either high cycle or standard universal drive. Operation is by normal power or by power from a Homelite Dual Purpose Gasoline Engine Driven Generator. Write for a free demonstration.

PERFORMANCE · DEPENDABILITY · SERVICE

HOMELITE

CORPORATION

1111 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Manufacturers of Homelite Carryable Pumps • Generators • Blowers • Chain Saws

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa

BRIXMENT

Better Mortar for Blocks

BETTER BODY

When concrete block are laid, the mortar should have "body", to support the weight of the unit, thus holding it up to the line. If the mortar lacks body, the block will settle below the line even if a thick bed of mortar has been spread.

At the same time, plasticity is required. Unless the mortar is plastic, the bricklayer cannot quickly and accurately tap the block down to the line.

Brixment has body and plasticity. It is firm but not stiff — soft but not sloppy. This combination of body and plasticity makes Brixment the best possible mortar to use with concrete blocks.

BOOKS

Training, Dael Wolfle, director. 332 pp. Harper & Brothers, 49 E. 33rd St., New York 16, N. Y. $4.00.

HAIL COLUMBIA—The 30-Year Struggle for Grand Coulee Dam—By George Sundborg. 467 pp. The Macmillan Co., 60 Fifth Ave., New York 11, N. Y. $5.75.

COMPRESSED AIR HANDBOOK — Second Edition. McGraw-Hill Book Co., 330 West 42nd St., New York 36, N. Y. $8.00.

Reports and Pamphlets

PERFORMANCE OF PLUMBING FIXTURES AND DRAINAGE STACKS—Housing Research Pape 31, Housing and Home Finance Agency, Division of Housing Research. For sale by Superintendent of Documents, Washington 25, D. C. $0.25.

THE COLLEGE GRADUATE AND THE RAILROAD INDUSTRY—Federation for Railway Progress, 1430 K St. N. W., Washington, D. C.

SELECTION AND COUNSELING OF STUDENTS IN ENGINEERING — Minnesota Studies in Student Personnel Work, No. 4. University of Minnesota Press, Minneapolis, Minn.

A LITERATURE REVIEW OF THE UTILIZATION OF FLY ASH—Engineering Experiment Station Bulletin Number 6, Clemson A & M College, Clemson, S. C.

PROCEEDINGS OF THE SIXTH CALIFORNIA STREET AND HIGHWAY CONFERENCE: (February 3-5, 1954)—The Institute of Transportation and Traffic Engineering, University of California, Berkeley, Calif. $2.00.

INTERNATIONAL BIBLIOGRAPHY OF PREFABRICATED HOUSING—Albert Farwell Bemis Foundation, Room 7/333, Massachusetts Institute of Technology, Cambridge, Mass. $1.00.

DESIGN NOMOGRAPHS—By James J. Kerley Jr. Published by the author, 6203 Forest Road, Chaverly, Md. $1.00.

RADAR ON INLAND WATERWAYS—Louisville District, Corps of Engineers, U. S. Army, 830 West Broadway, Louisville 3, Ky. Limited free distribution.

FIRE HAZARDS AND SAFEGUARDS FOR METALWORKING INDUSTRIES—The National Board of Fire Underwriters, 85 John Street, New York 38, N. Y.

PROCEEDINGS OF THE 1954 SOUTHERN INDUSTRIAL WASTES CONFERENCE — Manufacturing Chemists' Association, 1625 Eye St., Washington 25, D. C. $2.50.

To help you hole-thru faster...

COMMERCIAL liner plates speed up mining in soft ground tunneling

Working many feet underground in the heading of a soft ground tunnel, this crew is unconcerned about the possible danger which could result from a cave-in. By installing the COMMERCIAL steel liner plate system of ground support, the contractor of this job is providing the best safety insurance for his men as well as assurance for himself that his job can be completed on schedule.

When you realize that the COMMERCIAL plates have continuous inward flanges with all four corners solid, it is easy to understand why they are so strong and will support such heavy loads. No one wants to take a chance of loosing a heading because of inadequate ground support. A lost heading, like a lost week-end, costs money and takes time to recover from.

Look how close to pay line these "sand hogs" mine. Just a few more spadefuls of dirt need to be removed before one of them will slap the next plate into place while the other will slip seven bolts thru matching holes in the flanges and quickly tighten up the nuts with a rachet. Bolt in one hand, nut in the other, two inside vertical flanges between with matching holes—everything out in the open—what could be quicker or more simple?

As all flange joints are butt to butt and plates are curved to the exact required radius, there's no over-mining beyond pay line to cause voids behind the plates. Thus ground ravelling is minimized and reduction of the amount of grouting behind the steel lining, if any, becomes a very substantial cost-saving item.

Our experience, from many years work with engineers and contractors who have successfully used the COMMERCIAL liner plate system in hundreds of different soft ground tunnels, can be a great help to give you the footage and safety needed to complete your tunnel on schedule. There will be no obligation.

"COMMERCIAL"
PRODUCTS PREFERRED BY CUSTOMER ACCEPTANCE
THE COMMERCIAL SHEARING AND STAMPING COMPANY
Youngstown, Ohio · Chicago, Illinois · Salt Lake City, Utah

A-A-12

The Facts Behind Allis-Chalmers Leadership in Torque Converter Tractors

***Fourteen* years of experience . . . *eight* years with production models . . . *thousands* of torque converter tractors out in the field . . . *millions* of operating hours on *every* kind of work in the construction business.**

TODAY'S top contractors have given their "stamp of approval" to torque converter drive—as a key factor in the new standards of tractor performance they need for today's closely-bid jobs. Here's why —

Automatic Matching of speed and pull to load and terrain conditions . . . more dirt moved every hour, day in and day out.

Hydraulically cushioned protection for engine, clutch, transmission, rear end. The entire tractor lasts longer! That means less downtime, lower maintenance costs, more profit.

Operators love it! Allis-Chalmers torque converter tractors are so easy to handle (most shifting is eliminated) that operators do a top-notch job all day long.

Yes, the construction industry's most experienced men are demanding and buying torque converter tractors . . . *and in this, Allis-Chalmers leads the way.*

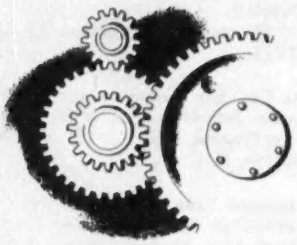
But, remember, you don't buy just one feature . . . you buy a *tractor*, with torque converter drive designed as a matched part of the entire machine. This advanced drive is only *one* of the many outstanding features that have switched so many leading contractors to Allis-Chalmers tractors. So . . .

Check all these features before you buy!

All-Steel Box-A Main Frame with one-piece, rear-end housing gives improved weight distribution, soaks up shocks, provides better equipment mounting, greater servicing ease . . . longer equipment life.

Service Simplicity of Unit Construction — Power drive components can be easily removed, repaired or replaced without disturbing adjacent parts . . . saving time and money.

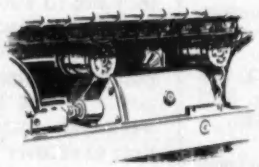
"Live" Sprocket Shafts — "Live" shafts with straddle-mounted bearings permit small, more serviceable seals. Double reduction final drives with smaller gears and shorter, heavier shafts mean extra ground clearance, better alignment, longer life.



1,000-Hour Lubrication — Tapered roller bearings and positive seals on truck wheels, idlers, support rollers and final drives extend lubrication intervals, cut downtime.

Hydraulic Booster Steering — Gives operator small tractor maneuverability with new ease. In addition, self-energizing brakes which take hold with a firm, uniform grip, provide exact control and sure safety with less pedal pressure.

True-Dimension Track provides maximum ground contact . . . plus the right design, the best steels for every job condition . . . heat-treated for long life with the industry's newest, most complete facilities.

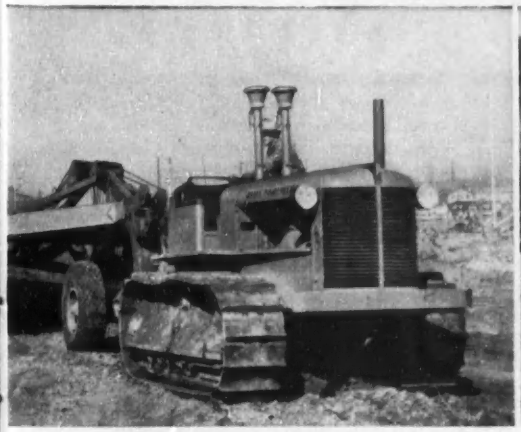


Oil-Enclosed Track Release Mechanism — Operates in oil, seals out dirt and moisture, always in working condition to provide positive protection.

See your nearby Allis-Chalmers dealer now for the full story. Whether you're interested in a big tractor like the HD-20 or HD-15 . . . or the smaller HD-9 and HD-5, you can be sure of getting the most advanced tractor in the business, because Allis-Chalmers is the leadership line.

ALLIS-CHALMERS

TRACTOR DIVISION · MILWAUKEE 1, U. S. A.

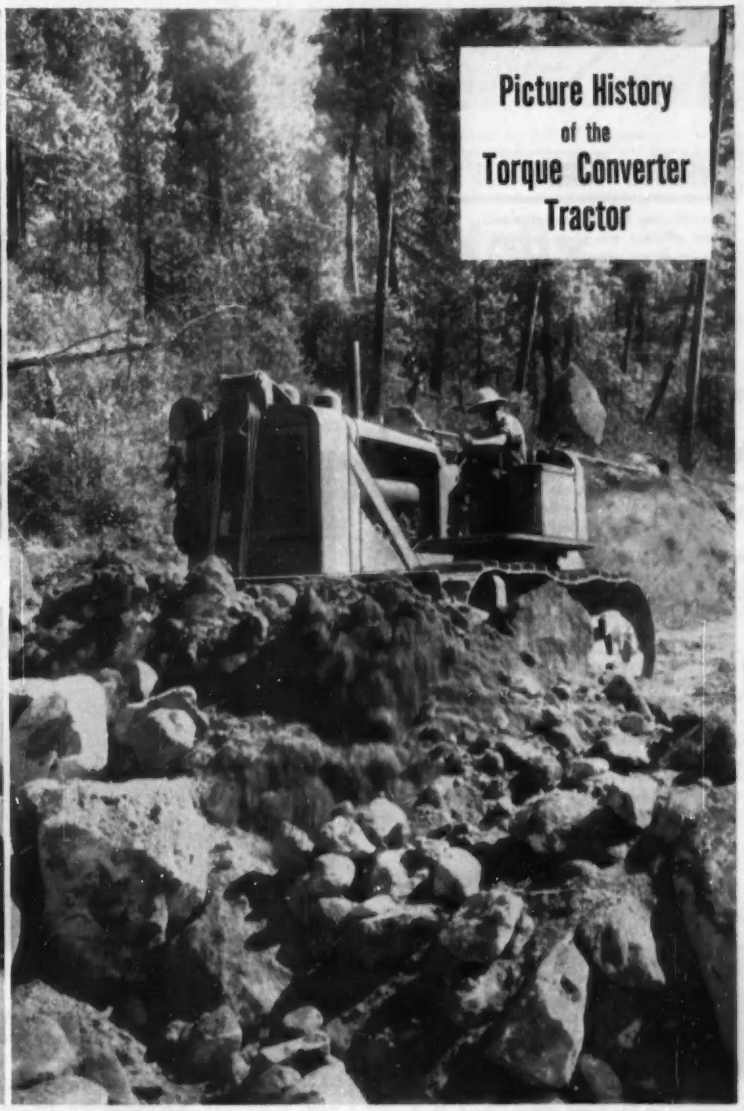


1940 THE FIRST tractor in the world with torque converter drive.

WORLD WAR II—The torque converter equipped M-4 military tractor, built by Allis-Chalmers.

1947 THE HD-19 proved the value of torque converter drive for big production.

1951 THE HD-20, 175 net engine hp, most productive tractor in the business.



1954 THE HD-15C, 135 net engine hp, brings advantages of torque converter to a new range of work.

IRVING GRATING

FOREMOST... in

★ ECONOMY
★ STRENGTH
★ VERSATILITY
★ SAFETY

RIVETED "RETICULINE"

The most substantial grating design made for distribution of heavy loads and rugged needs. Provides maximum traction combined with smoothness for walking, working, wheeling in all directions.

WELDED "GRIPWELD"

Special cross bar effects smoothest, most efficient one-piece welded construction, assuring maximum strength with minimum weight, and safety underfoot.

PRESSURE-LOCKED "X-BAR"

The cross and bearing bars are locked under tremendous hydraulic pressure to provide a strong, safe, lightweight floor. X-Bar Grating is self-cleaning and most economical.

ALUMINUM

In riveted and pressure-locked types only. Extra-light, corrosion-resistant, spark-proof. Ideal for chemical and petroleum industries.

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ESTABLISHED 1902

OFFICES and PLANTS at
5063 27th St., Long Island City 1, N. Y.
1863 10th St., Oakland 20, California

MEN AND JOBS

Welding Society Award Presented to A. F. Davis

A. F. Davis, vice president, Lincoln Electric Co., Cleveland, is this year's recipient of the American Welding Society's Samuel Wylie Miller Memorial Medal awarded for "conspicuous contribution to the advancement of the art of welding and cutting."

At the presentation, which was made in Chicago, Nov. 1, Mr. Davis was praised for his work in heading his company's educational program on welding over the past 30 years, which has included the publishing and selling of over a million copies of technical books on arc welding, operating the Lincoln Welding School and acting as secretary of the James F. Lincoln Arc Welding Foundation, which has sponsored annual competitions in welding designs.

Col Andrew J. Goodpaster Gets White House Assignment

Col. Andrew J. Goodpaster, recently District Engineer, San Francisco Corps of Engineers, has become Defense Department liaison officer at the White House. He was appointed by President Eisenhower to fill a vacancy caused by Brig. Gen. Paul T. Carroll's death in September.

As defense liaison officer, Goodpaster's duties primarily consists of handling communications between the White House and the Defense Department.

His successor in San Francisco is Col. John A. Graf, a native of Monroe, Mich., and formerly executive officer of the Portland, Ore., district, Corps of Engineers.

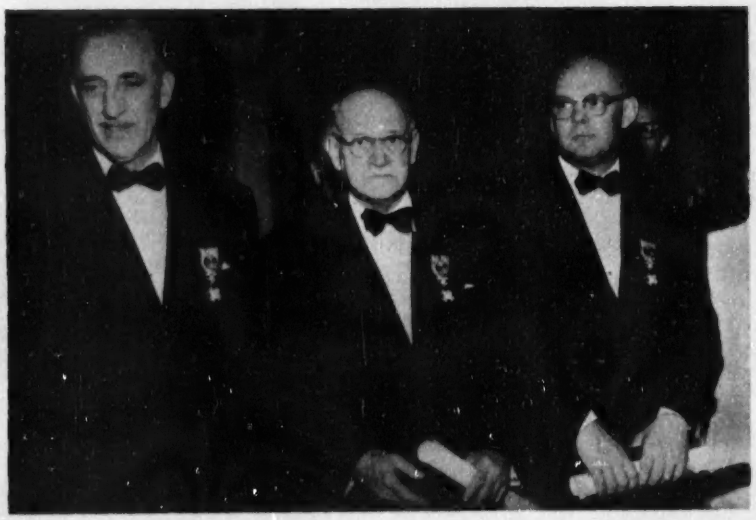
Joseph Humberstone Elected By American Welding Society

Joseph H. Humberstone was elected president of the American Welding Society at its 35th annual meeting in Chicago. Humberstone is a former president of Air Reduction Sales Co., Inc., New York.

Also elected were: J. J. Chyle (director of welding research, A. O. Smith Corp., Milwaukee, Wisc.) as 1st vice president; and C. P. Sander (general superintendent, Western Steel Div., United States Steel Co., Vernon, Calif.) as 2nd vice president.

The four new directors-at-large are: E. D. Peters, president and treasurer of Leader Iron Works, Decatur, Ill.; R. J. Yarrow, Consolidated Iron and Steel Manufacturing Co., Cleveland,

(*Continued on page* 108)



Honors From Bolivia

Bolivia's Order of the Condor has been conferred on three U. S. engineers. Occasion was the dedication of the new Cochabamba-Santa Cruz highway (ENR Oct. 7, p. 273). Recipients are: Benjamin Cottrell, Bureau of Public Roads engineer who was in charge of the original surveys and plans for the highway; center, Gerald S. Rinehart, project engineer for Knappen-Tippetts-Abbett-McCarthy, consultants and construction supervisors; and Max Winter, Jr., project manager for Macco Panpacific Co., the contractors for the project.

Push-loaded by 175 hp tractor, "C" heaps 11 to 13 pay yards in 40 to 45 seconds.

Average 3,612 pay yards daily... finish U. S. 66 widening ahead of schedule

ORR CONSTRUCTION COMPANY, Chicago Heights, widening 9 miles of U.S. 66 south of Lincoln, Illinois, had to move 220,000 yards of clay, topsoil and mud in 72 days. To meet this schedule, Orr brought in 6 C Tournapulls, three crawler-pans along with supplementary pushers and patrols. Conditions ranged from good to poor. On one part of the job, the "C's" hauled from a borrow located on quicksand where the water table was only 2′ underground. Much of the dirt was taken across the highway through open traffic controlled by flagmen. Also, haul lengths frequently reached 1¼ miles one-way.

Timekeeper's records covering all these phases show the Tournapulls worked continually at 90% to 95% mechanical efficiency. Work included cutting a number of access roads through muddy ditches and fields to scattered off-road borrow pits.

2400′ cycle in 5 minutes

At point where time studies were taken, despite poor footing, the "C's" built a typical 600′ road and cross-highway ramp in about 2 hours. Then they went to work loading from the pit.

Average load from this pit was 11½ pay yards. Haul was made up ramp, across traffic, down another ramp to fill 1100′ away. Each rig made 11 cycles per 55-minute hour. Output for the fleet of 6 Tournapulls totaled 759 pay yards per hour. This high rate helped balance time lost due to heavy rains. As a result, Orr finished well ahead of schedule.

Said Foreman LaVaun B. Jensen, "Tournapulls worked out fine. Despite tough conditions we had very few breakdowns. The torque proportioning differential helped rigs pull easily through muddy soft spots."

"C Tournapull is the best . . ."

Operator C. W. Brown said, "I've run equipment all the way from Guam to Africa, and this C Tournapull is the best that I've run."

High speed belongs on your jobs, too. Phone for a Tournapull demonstration and prove it pays off for you!

Tournapull, Tournamatic—Trademark Reg. U.S. Pat. Off. P-541-H-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

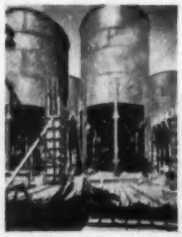
A Subsidiary of Westinghouse Air Brake Company

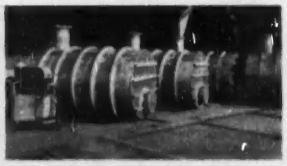
Here's Proof-

McDonough has the facilities and experience to handle your steel or alloy fabricating job.

Combined to meet your requirements —sound engineering design, complete manufacturing facilities, experienced workmen.

Experience in every field of industry, from the usual to the most difficult fabricated steel work—regardless of weight, bulk or tolerance. Finished projects pictured below: smoke stack, duct and breeching assembly; furnaces for petroleum industry; soap storage kettles; vacuum tubes for food processing plant; grain storage bins; flue and coolers for smelting plant; stainless steel kettle for petroleum industry; field storage tank; all-aluminum tanks for underground storage of liquid chemicals.





McDonough Steel Co.

Founded January 1st 1924

ENGINEERS—FABRICATED STEEL PRODUCTS

800 - 75th AVENUE OAKLAND 21, CALIFORNIA TRINIDAD 2-3300

MEN AND JOBS

Ohio; G. O. Hoagland, Alcoa Process Development Laboratories, New Kensington, Pa.; and J. L. Wilson, consulting naval architect and engineer, New Jersey.

Men and Jobs briefs . . .

• **Business**—**Wellington Donaldson,** recently retired from New York City Department of Public Works, has joined Parsons, Brinkerhoff, Hall & Macdonald. . . . Borg-Warner Corp., has elected **T. J. Ault** president and general manager of its Long Manufacturing Division in Detroit. . . . **Charles T. Blake** joins Green Engineering Co. in Sewickley, Pa. . . .

Clinton N. Hermandez, a vice president of Turner Construction Co. . . . **Sol E. Schultz,** formerly chief engineer Bonneville Power Administration, will head up the new Portland, Ore., regional office of H. Zinder & Associates, Washington, D. C. . . .

Paul G. Walker opened an office in Vancouver, B. C., as consulting engineer. . . . **R. M. Rodriguez** has joined Dow Chemical Texas Division at Freeport as civil design engineer. . . . **Walter E. Hanson,** bridge engineer, and **Roland D. Collins** and **Marcus J. Rice,** designers, resigned from Illinois Highways Division to open consulting office in Springfield. . . .

T. Curtis Lloyd is now controller of A. Bentley and Sons Co., Toledo. . . . Grant & Bruner, Ltd., dissolved—**Kenneth C. Grant** opens his own office as consulting engineer in Los Angeles; **Edwin L. Bruner** has his architectural and engineering office in South Pasadena. . . .

• **Retirements**—**John G. Swanston** as building construction engineer of Navy's Bureau of Aeronautics. . . . **Ralph H. Woodard** as city manager, Whitehall, N. C. . . . **Charles A. Fritz,** after 15 yrs. as district highway engineer, Massachusetts Department of Public Works. He becomes consultant with the department. . . .

• **Honors**—**Joseph S. Mozino,** Drexel Hill, Pa., who rose from "rags to riches" as contractor and engineer, welcomes **Luciano Verdoni,** Genoa, Italy, as first recipient of $10,000 scholarship established recently by Mozino at Drexel Institute of Technology. . . .

Bureau of Reclamation presents cash awards of $200 each to eight engineers—seven of its own from Denver office and one from University of California—for helping to formulate new criteria in design of concrete gravity and arch dams.

Why the **MICHIGAN*** Tractor Shovel moves bigger yardage – *the Clark Torque Converter®*

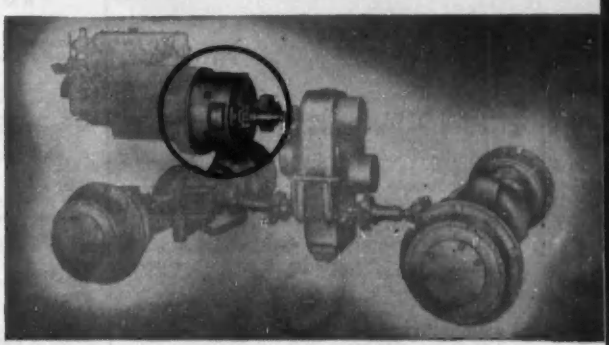
You can do miraculous things with a MICHIGAN* Tractor Shovel because of *extra power when it's needed*—a result of 3-to-1 torque multiplication in the CLARK Torque Converter.

● **Digging into TOUGH Material**—watch a MICHIGAN *force* its bucket into tough, compacted material: not a "shock" action—but a steady, resistless flow of *increasing power* that puts no punishing strain on the driving shafts and gears. Torque multiplication plus the terrific digging power of the hydraulic bucket rams enable the MICHIGAN to perform unbelievable feats.

● **Maintenance and Down-time reduced to a minimum**—the CLARK Torque Converter eliminates the engine clutch: the weakest link in a conventional power-train and the unit most frequently requiring repair.

● **Make ANY Shift at ANY Time**—with the Torque Converter, driving is as easy as handling your car! Shift into Forward or Reverse, into High or Low range *while moving in either direction* . . . the Torque Converter absorbs shocks.

● **Standard Equipment on All Models**—Clark is first to present a full line of Tractor Shovels with Torque Converter as standard equipment. See the MICHIGAN Tractor Shovel. Watch it in action, demonstrating its astonishing power, speed and maneuverability.



Talk to your MICHIGAN dealer; and send for the MICHIGAN Fact Folio, handy file of specifications and action photos—the coupon gets prompt action.

*A Trademark of Clark Equipment Company ®Clark manufactured under Schneider License.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY 19C
Construction Machinery Division
390 Second Street
Benton Harbor, Michigan

Please send the MICHIGAN Tractor Shovel FACT FOLIO

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Firm_____

Address_____

City_____ County_____ State_____

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Me., Limestone**—SHOP—BA On Or About 12/16—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., ordnance equipment shop, Loring Air Force Base. ENG-19-016-55-50, $100,000.

BIDS ASKED—BUILDINGS

N. H., Manchester—HOSPITAL—BA 11/22—Hospital Notre Dam Des Lourdes, 337 Notre Dame Ave., (selected list of bidders), hospital, Notre Dame Ave. $750,000. Extended date. Leo P. Provost, 61 Amherst St., archt. CD 11/3.

Conn., Cromwell—SCHOOL—BA 11/30—Town, Roger F. Summ, chn. School Bldg. Comn., 463 Main St., Junior High School, Geer St. $450,000. Plans deposit $50. Carl J. Malmfeldt & Assocs., 36 Pearl St., Hartford, archts. CD 4/23.

Mass., Bedford — SCHOOL — BA 12/2 — Town, School Bldg. Comn., Junior High School Bldg., School Ave., 2 story, brick, masonry Senior High School, $935,000. Plans deposit $100. Adden, Parker, Clinch & Crimp, 177 State St., Boston, archts.

Mass., Stow—SCHOOL—BA 11/26—Town, School Dpt., brick veneer, cinder block elementary school, off Great Rd. $394,500. Plans deposit $50. Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, archts. CD 5/10/54.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **W. H. Hinman, Inc.,** 58 Main St., Westbrook, Me. LB $239,000, est. $250,000. soil erosion control Naval Air Station, NOY 85296. Spec. 43337, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston, Mass. Bids Nov. 4. CD 10/26.

† **U. S. Eng.,** 857 Commonwealth Ave., Boston, Mass. cancelled bids to have been opened Nov. 5. Clearing FY-55 Loring Air Force Base, ENG-19-016-55-37, LIMESTONE, ME. CD 10/26.

† **Contr. Officer, Bldg. T-603,** Air Force Base, Presque Isle. Me. rejected bids Oct. 4. physical conditional facility, Presque Isle Air Force Base, Inv. 17-602-55-15, PRESQUE ISLE, ME. CD 9/28.

▲† **Blount Bros. Constr. Co.,** Bell Bldg., Montgomery, Ala. LB $2,144,392, est. $2,500,000-$3,000,000. double cantilever hangar, Otis Air Force Base, ENG-19-016-55-33, FALMOUTH, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Nov. 5. CD 10/25.

DiMinico & Pallotta, 6 Pleasant St., Malden, Mass. LB Approx. $125,000. sewer work various locations, LOWELL, MASS. City, P. Wks. Comn., Merrimack St., Lowell, Mass. Bids Nov. 2. CD 10/26.

▲ **The Foundation Co.,** 57 William St., New York, N. Y., CA, $2,738,000. rebuilding viaduct between Fairfield Ave. and Union Square, BRIDGEPORT, CONN. New York, New Haven & Hartford R.R. Co., T. P. Polson, ch. engr., 54 Meadow St., New Haven 6, Conn. CD 10/26, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Jefferson Constr. Co.,** 75 First St., Cambridge, Mass. LB $437,000, est. $400,000. Elementary SCHOOL Loring Air Force Base, Proj. Me-54C-FED 1-AA, LIMESTONE, ME. Housing & Home Finance Agency, Contg. Officer, 346 Broadway, New York, N. Y. Bids Nov. 4. CD 10/26.

Walsh Brothers, 150 Hampshire St., Cambridge, Mass. CA Approx. $350,000. Parochial SCHOOL, Hodges St., ATTLEBORO, MASS. St. John the Evangelist Parish, c/o R. C. Diocese of Fall River, Chancery Office, 394 Highland Ave., Fall River, Mass. Bids Sept. 29. CD 9/14.

▲**John Bowen Co., Inc.,** 173 Boston St., Dorchester, Mass. CA $2,448,918. M-506 medical surgical bldg., Boston State Hospital, Dorchester, BOSTON, MASS. State, Dpt. Mental Health, c/o Div. Bldg. Constr. 38 Chauncey St., Boston, Mass. CD 11/3, under LB.

N. D. C. Constr. Co., Inc., 124 Shawmut Ave., Boston, Mass. LB $357,645, est. $300,000. CHURCH Museum Rd (Fenway) BOSTON, MASS. St. John of Damascus Church, 68 Hudson St., Boston, Mass. Bids Nov. 1. CD 10/26.

Gilbane Building Co., 90 Calverly St., Providence, R. I. CA $340,000. INDUSTRIAL BLDG., Rte. 128, WALTHAM, MASS. Vectron, Inc., 400 Main St., Waltham, Mass. Bids Oct. 6. CD 9/30.

▲ **Gilbane Building Co.,** 90 Calverly St., Providence, R. I. CA Approx. $1,200,000. LABORATORIES and OFFICE, Rte. 128 and Trapelo Rd., WALTHAM, MASS. Tracerlab, Inc., 126 High St., Boston, Mass. Edwin T. Steffian, 11 Beacon St., Boston, Mass., archt. Cleverdon, Varney & Pike, 120 Tremont St., Boston, Mass., engrs. CD 2/3.

E & F Constr. Co., 94 Wells St., Bridgeport, Conn., CA, $300,000. CHURCH, ANSONIA, CONN. Three Saints Church, 152 Clifton Ave., Ansonia, Conn. Bids Oct. 26. CD 10/22.

A. F. Peaslee, Inc., 15 Lewis St., Hartford, Conn., LB, $869,999. HIGH SCHOOL, west of Park Ave., BLOOMFIELD, CONN. Town, High School Bldg. Comn., Bloomfield, Conn. Bids Nov. 3. CD 10/8.

Pascone Constr. Co., Inc., 115 Front St., Bridgeport, Conn., CA, $160,000, STORAGE, NEWINGTON, CONN. Anthony J. Pascone, Delaware Rd., Easton, Conn.

Rockville Acres, c/o Jerome C. Kelter, Jr., 68 Plain Dr., East Hartford, Conn., Owner Builds. $400,000. 34 RESIDENCES, South Rock Site, ROCKVILLE, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Pa., Middletown**—SUB-STATION—BA 11/22—Procurement & Production, Middletown Air Material Area, Olmstead AFB, Middletown, electrical sub-station addn. and 13.2 KV distr. at Olmstead Air Force Base, No. 36-600-55-33. CD 7/12/51.

† **New Jersey**—BA 11/23—U. S. Eng., 80 Lafayette St., New York 13, N. Y., dredging approx. 287,000 cu. yd. all material except ledge rock from Raritan River to Arthur Kill Cutoff Channel, Middlesex Co., Serial No. CIVENG-30-075-55-26.

†**Md., Cambridge**—BA 11/29—Fish & Wildlife Service, Dpt. Interior, 59 Temple Place, Boston 11, Mass., clearing, grubbing, plowing approx. 100 acres land at Blackwater National Wildlife Refuge, Inv. FWS-2003.

New York—STATION and SUB-STATION—BA 11/30—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, constr. Station and Sub-station at Broad Channel, Rte. No. 119-G (Rockaway Rte), Queens Boro. CD 8/31/45.

New York—DEKALB AVE. RECONSTR.—BA 12/3—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, DeKalb Avenue reconstr., general constr. Sects. 1 and 2, Brooklyn. CD 9/6/45.

▲ **N. Y., New York**—TUNNEL RECONSTR.—BA 12/10—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, reconstr. shuttle's tunnel. Est. $1,100,000.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

BIDS ASKED—BUILDINGS

▲ **Md., Baltimore**—OFFICE—BA 11/24—At office Harrison & Abramovitz, archts., 630 Fifth Ave., New York, N. Y., 11 to 16 story office, 309-313 N. Charles St. and St. Paul and Saratoga Sts., for Commercial Credit Co., First National Bank Bldg., Baltimore 2, Md. $10,000,000-$15,000,000. CD 8/3/53.

N. Y., New York—SCHOOL—BA 12/2—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, constr. P. S. 19, 1st. Ave., E. 11 and 12 Sts., Manhattan Boro. Plans deposit $24. CD 9/8/48.

N. J., Dunellen—PASSENGER STATION, etc.—BA 12/6—The Central R. R. Co. of New Jersey, S. L. Mapes, ch. engr., Jersey City Terminal, foot of Johnston Ave., Jersey City, 2 story passenger station steel canopy and shelter bldg., in connection with Dunellen-Plainfield Grade Crossing Elimination Proj. Plans deposit $25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Edward Acker Corp., 128 E. Broadway, Port Jefferson, N. Y., CA $549,668, est. $710,400, Atlantic Beach Park Dist. (Genesee Ave. and 6th St.) BP 54-51, Rt. 2, Nassau Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 16, awarded Oct. 8. CD 9/23, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Mt. Vernon Contg. Corp.* & S. A. Healy Co., 439 N. Terrace Ave., Mt. Vernon, N. Y., CA $2,787,448, est. 3,182,000, Major Deegan Expressway Exten. Cont. 5A, (1.00 Hy.) (3.12 Acc.), mi. FAMDE, 54-5, Bronx Co. Bids July 1. Awarded July 20. CD 7/7, under LB.

Gregory Engr. Co. & P. J. Riley Engr. Co., 5-32 51 Ave., Long Island City 1, N. Y. LB $239,183, sewage treatment plants at gas stations and restaurants at Ruby, Ulster Co. and Malden, Greene Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 21. CD 9/22.

I & O. A. Slutsky, Inc., Hunter, N. Y., LB $103,500, constr., heating and ventilating, plumbing, electric and food service equipment work for New York State Thruway Auth., temporary restaurant facilities and related temporary gas stations, Rtes. 8 and 12 Interchange No. 31, Utica, N. Y. and Rte. 148, Interchange No. 28, Fultonville, NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 23. CD 9/13.

▲ **J. Rich Steers, Inc.,** 17 Battery Pl., New York, N. Y. CA $12,477,090, Contr. No. 4, structures and equip.;

Rao Constr. Co., Inc., 739 2nd Ave., New York, N. Y. CA $894,340, Contr. No. 5, electrical work for constr. Bowery Bay Sewerage Treatment Works Exten., Berrian Blvd. and 43 St., Queens Boro, ASTORIA, N. Y. Dpt. P. Wks. Municipal Bldg., New York 7, N. Y. Bids Oct. 13. CD 10/22, under LB.

Potter-DeWitt Corp., Pavilion, N. Y., LB $535,878, imprv. grounds, grading and drainage, Harpur College, ENDICOTT, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 7. CD 9/24.

Victor J. Georgetti, 310 Riverside Blvd., Long Beach, N. Y., LB $195,896, sanitary work (replacement of sewage disposal plant) Long Island Agricultural & Technical Institute, FARMINGDALE, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 28. CD 9/23.

▲ **Passenger Belt Conveyors, Inc.,** 1144 E. Market St., Akron, O., CA $3,881,000, est. $2,000,000. moving platform, conveyor sys. between Times Square and Grand Central, NEW YORK, N. Y. New York City Transit Auth., 379 Jay St., Brooklyn 1, N. Y. Bids Oct. 29. CD 11/3, under LB.

† **John A. Johnson & Sons, Inc.,** 303 41 St., Brooklyn, N. Y., LB, $251,106, blood processing center, McGuire Air Force Base, ENG-36-109-55-9, WRIGHTSTOWN, N. J. U. S. Eng., 2635 Abbotsford Ave., Phila. 29, Pa. Bids Oct. 15. CD 9/9.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Nello L. Teer Co., P. O. Box 1131, Durham, N. C., CA $3,699,071. grading, drainage 35 ft. and variable in width 2.51 mi. between South Heights and Aliquippa, Application Rte. 3955, Beaver Co. Bids Oct. 22. CD 10/28, under LB.

PENNSYLVANIA—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Adam Eidemiller, Inc., Greensburg, Pa., CA $564,206. constr. 9,123 ft. crushed aggregate base with bit. surf. variable in width, continuous concrete deck plate girder bridge, deck plate girder railroad bridge, T. R. 119, Burrell Twp., Indiana Co. Bids Oct. 22, awarded Nov. 4. CD 10/28, under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,

Central Pennsylvania Quarry & Stripping Constr. Co., Hazleton, Pa., LB $1,953,032, constr. 2.9 mi. (Sec.

(Continued on page 113)

For every community need in modern outdoor seating

THE SAFETY OF STEEL

THE COMFORT OF CORRECT DESIGN

THE ECONOMY OF LONG LIFE

THE SATISFACTION OF FINE APPEARANCE

MERCED COUNTY, CALIF. Fairgrounds Stand. 2600 seats: four rows of box seats, 23 rows grandstand seats.

TROY, OHIO. One of two football stands, capacity 5,000 seats each. Note press box and enclosed underdeck area.

DES MOINES, IOWA. Baseball Stand. 2700 grandstand seats plus 500 box seats, totalling 3200 capacity.

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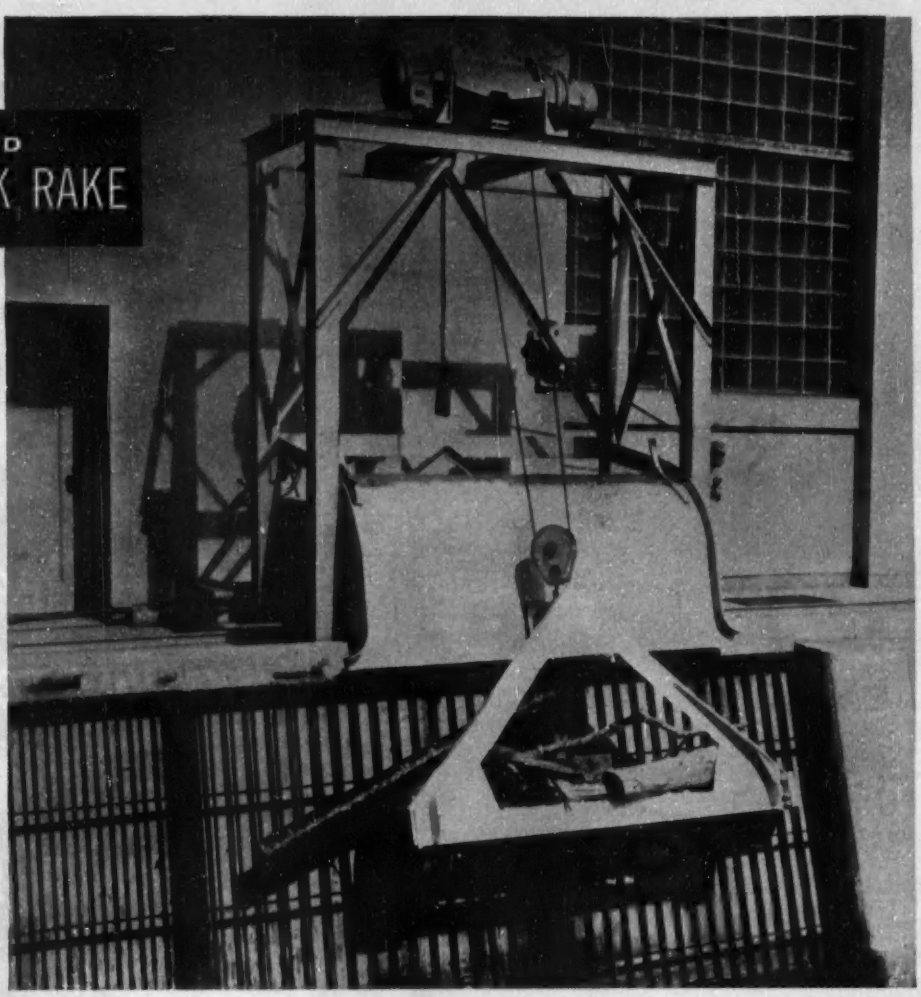
LOS ANGELES (48), ... 6399 Wilshire Blvd.
DES MOINES (8), 913 Tuttle Street
DALLAS (1), 1217 Praetorian Bldg.
SEATTLE . . . . . 520 Lane Street
SANTA CLARA, CAL., 619 Alviso Road

LEONARD

TRASH RACK RAKE



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Rake teeth parallel rack bars to clear debris and obstacles on descent, tilt to a perpendicular position when ascending and carry all extraneous matter to the unloading position. Operation is by an electric hoist on either inclined or vertical stationary rack bars.

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Accessories

HYDRODYNAMICS

Rotovalves
Ball Valves
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Free-Discharge Valves
Controllable-Pitch Ship Propellers

S. MORGAN SMITH CO.

SMS

(Continued from page 110)

37-C) Northeastern Exten., Kidder Twp., Carbon Co. Bids Nov. 3. CD 10/20.

Square Constr. Co., 115 S. Haven St., Baltimore 24, Md. LB $296,000. water main contract Gwynns Falls Parkway and Windsor Mill Rd., BALTIMORE, MD. City, Bureau Water Supply, 503 Municipal Bldg., Baltimore 2, Md. Bids Oct. 20. CD 10/13.

Ingleside Plumbing & Heating, Inc., Ingleside Ave. and Johnnycake Rd., Baltimore 7, Md. LB $128,946. sewage treatment plant, pumping facilities, LA PLATA, MD. Town, City Hall, LaPlata, Md. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore 2, Md., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **James Stewart & Co., Inc.**, 230 Park Ave., New York, N. Y., CA $1,921,000, general contract;

Tougher Heating & Plumbing Co., Inc., Menands, N. Y. CA $523,400, heating work for Dpt. Health, STATE OFFICE BLDG., Holland Ave., ALBANY, N. Y. Bureau Contracts & Accounts, Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Aug. 19. Awarded Sept. 17. CD 8/23.

McManus, Longe & Brockwehl, Inc., 65 Arcade Court, Albany, N. Y., CA $679,600, HEATING PLANT, incl. alterations to Page and Richardson Bldgs., Spec. No. 12860-1-2 and 3, New York State College for Teachers, ALBANY, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 9, awarded Oct. 8. CD 9/17, under LB.

▲ **Castagna & Son, Inc.**, 155-10 Jamaica Ave., Jamaica, N. Y. LB $2,487,539, general constr.

Jarcho Bros., Inc., 38-18 33 St., Long Island City, N. Y. LB $391,000, plumbing;

Arthur E. Magher Co., Inc., 175 Christopher St., New York 14, N. Y. LB $421,112, heating;

Herman H. Schwartz, Inc., 179 S. Portland Ave., Brooklyn 17, N. Y. LB $526,820, electrical work for constr. LABORATORY-MORTUARY and GARAGE BLDGS., Kings County Hospital, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 4. CD 10/26.

Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y., rejected bids Sept. 23, constr., heating, sanitary, electric and electric elevator work for twelve family staff APARTMENT and two GARAGES, Central Islip State Hospital, CENTRAL ISLIP, N. Y. CD 8/31.

Braverman Constr. Co., 26 Court St., Brooklyn 2, N. Y. LB $148,780, second story addn. to INDUSTRIAL SHOP BLDG., Green Haven Prison, GREEN HAVEN, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 14. CD 9/23.

▲ **T. G. K. Constr. Co.**, 55 W. 42 St., New York 36, N. Y. CA Approx. $1,000,000. 5 story SCHOOL, Eastchester Rd. and Shore Pl., NEW YORK. N. Y. Holy Rosary School, 371 Pleasant Ave., New York 5, N. Y. York & Sawyer, 101 Park Ave., New York 17, N. Y., archt.

Coventry Gardens Homes, c/o Charles Lee Koester, archt., 679A Hempstead Turnpike, Franklin Square, N. Y. Owner Builds. $750,000. 70 HOUSES, Manor Rd. and Sinclair Dr., north of Jericho Turnpike, HUNTINGTON, N. Y.

The Sutherlin Corp., 145 W. 57 St., New York 19, N. Y. CA $300,000. STAFF RESIDENCE, NEW HYDE PARK, N. Y. Long Island Jewish Hospital, 270-95 76 Ave., New Hyde Park, N. Y. Louis Allen Abramson, 25 W. 45 St., New York 19, N. Y., archt.

▲ **W. E. O'Neill Contr. Co.**, 412 Syracuse-Kemper Bldg., Syracuse, N. Y., LB $1,591,087, woods products LABORATORY, New York State College of Forestry, Syracuse University, SYRACUSE, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 14. CD 9/20.

Nelson Phillips, Stony Point, N. Y. LB $109,850, replacing worn out POWER PLANT equipment, Letchworth Village, THIELLS, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Oct. 7. CD 9/22.

Forge Constr. Co., 405 North Ave., New Rochelle, N. Y. LB $499,000, constr., heating, sanitary and electrical work for NURSES HOME and two STAFF HOUSING BLDGS., incl. service connections and imprv. grounds, New York State Rehabilitation Hospital, WEST HAVERSTRAW, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 23. CD 8/31.

Arthur Venneri Co., 300 North Ave. East, Westfield, N. J. CA, $509,000. STAFF RESIDENCE, Bonnie Burn Sanatarium, Berkeley Heights, ELIZABETH, N. J. Bd. Freeholders Union Co., Court House, Elizabeth, N. J. Ernest T. Brown, 7 Wachung Ave., Plainfield, N. J., archt.

Walter Kidde Constructors, Inc., 140 Cedar St., New York 6, N. Y., CA, $700,000. 1 story WAREHOUSE and OFFICE, 15-acre tract, NEW BRUNSWICK, N. J. Alexander Smith, Inc., Saw Mill River Rd., Yonkers, N. Y.

▲ **Aragona Constr. Co.**, 5510 Jackson St., West New York, N. J. CA, $1,677,700. Senior High SCHOOL, PASSAIC, N. J. Bd. Educ., City Hall, Paulison and Passaic Aves., Passaic, N. J. Bids Aug. 10. CD 9/7, under LB.

▲ **Cornell Development Co.**, 311 N. 13 St., Phila., Pa., Separate Contracts, $2,000,000, RESIDENTIAL DEVELOPMENT, Homestead Ave., etc., PENNSAUKEN, N. J. William Dean Faint, Pennsauken, archt.

▲ **Tuckerton Creek Development Co.**, att. Irving Block & Henry Jaehnel, Point Pleasant, N. J., Separate Contracts, $1,500,000, RESIDENTIAL DEVELOPMENT, S. Green St., TUCKERTON, N. J.

The new Ozalid 800... volume whiteprints in a compact, low-cost machine

Ozalid's new 800 turns out whiteprints, up to 42 inches wide at speeds up to 30 feet per minute... in a continuous one-step operation!

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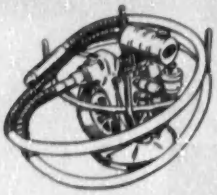
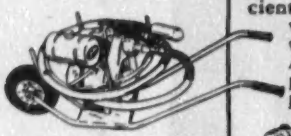
Concrete facts about Concrete Vibrators and Screeds

Model BU



Model BG



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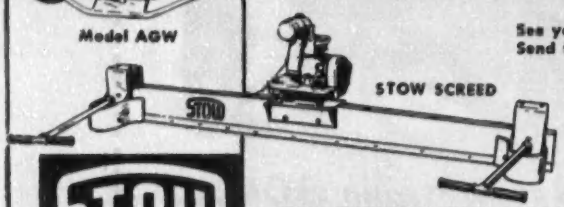
STOW SCREEDS—permit placing more than 300 cu. yds. in less than 8 hours; strike off and impact in one operation; leave surfaces true to grade; work up to and around manhole covers and obstructions.

See your STOW distributor. Send for free Bulletin 526.



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- *May be pumped directly into joint from melting kettle*
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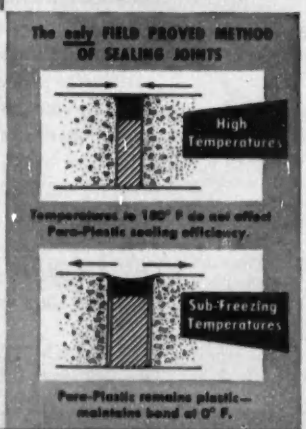
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William F. Barrett, Lansdowne, Pa. Separate contracts. $300,000. RESIDENTIAL DEVELOPMENT, Edgewood Rd., etc., BRIDGEPORT, PA.

John P. Donovan, Lewis Tower Bldg., Phila., Pa., CA $300,000. SCHOOL, GREEN RIDGE, PA. St. Josephs R. C. Church, Green Ridge, Pa. Bernard Raney, 10 S. 18 St., Phila., Pa., archt. Robert E. McLaughlin, 1411 Walnut St., Phila., Pa., engr.

M & M Building Corp., 2013 N. 61 St., Phila., Pa. Separate Contracts. $345,000. RESIDENTIAL DEVELOPMENT, 3 St., LANSDALE, PA. Erling Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ Stoffiet & Tillotson, 2043 Eastburn Ave., Phila., Pa. CA $1,624,500, HOSPITAL, DORMITORIES, etc. at Fair Acres, LIMA, PA. Comrs. Delaware Co., Media, Pa. Bids Sept. 21. CD 10/20, under LB.

Robert W. Siddall, Newtown Square, Pa., Separate Contracts. $700,000, RESIDENTIAL DEVELOPMENT, Goshen Rd., etc., NEWTOWN SQUARE, PA.

Barclay White Co., 22 N. 36 St., Phila., Pa., CA $110,000. 1 story, 96x230 ft., concrete, brick, steel, metal fabricating FACTORY addn., PHILA., PA. I T E Circuit Breaker Co., 601 E. Erie Ave., Phila., Pa. Robert Montgomery Brown, 1728 Spruce St., Phila., Pa., archt.

Saul T. Dishler, 1451 Ashbourne Ave., Wyncote, Pa. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Mansfield Ave., etc., PHILA., PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

R. M. Shoemaker & Co., 1619 Sansom St., Phila., Pa., CA $300,000. OFFICE BLDG. and GARAGE, POTTSTOWN, PA. Bell Telephone Co. of Penna., Widener Bldg., Phila., Pa. Bids Sept. 2. CD 9/1.

▲ Tilghman Houseman, Pottstown, Pa. Separate Contracts. $1,500,000. RESIDENTIAL DEVELOPMENT, Walnut St., etc., POTTSTOWN, PA.

▲ Girsh Moss., Inc., 6456 Market St., Upper Darby, Pa. Separate Contracts. $4,500,000. RESIDENTIAL DEVELOPMENT, Conestoga Rd., ROSEMONT, PA.

The Dundalk Building Co., 10 E. Fayette St., Baltimore 1, Md. Owner Builds. $748,800. 100 HOUSES in Stanbrook Development Merritt Blvd., Kirkleigh, Mormand Rds., BALTIMORE, MD.

▲ Dover Builders, Inc., Att. Charles L. Andrews, Odessa, Del., Separate Contracts, $2,000,000; RESIDENTIAL DEVELOPMENT, Route 13A; $300,000, RESIDENTIAL DEVELOPMENT, Kent Acres, Second Section, DOVER, DEL.

Witsil Built Homes, Inc., 1015 Walnut St., Wilmington, Del., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Westview Section, WILMINGTON, DEL.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† Va., Norfolk—BA 11/23—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, earth and concrete wall berm; drainage piping and facilities, seeding and related work at Naval Base, South Annex. Plans deposit $10.

W. Va., Charleston—BA 11/30—Sanitary Bd. of Charleston, City Bldg., Proj. WVA 46-P-4, Unit 2 lift stations, interceptors and force mains. Plans deposit $50. Settle Engineers, Peoples Bldg., engrs. CD 2/12/52.

† S. C., Aiken—WEATHER STATION—BA 12/1—U. S. Eng., Customhouse, Charleston, weather station, No. 38-081-55-12. CD 10/26.

† N. C., Goldsboro — ACCESS RAILROAD — BA About 12/10—U. S. Eng., 308 Customhouse, Wilmington, rehabilitation approx. 2.8 mi. access railroad track, roadbed and replacement one open-deck timber trestle. Seymour Johnson Air Force Base, Inv. No. ENG-31-075-55-24.

† S. C., Sumter—OPERATION SQUADRON BLDG.—BA About 12/10—U. S. Eng., Custom House, Charleston, operation squadron bldg. (JCC) and headquarters group TAC bldg., Shaw Air Force Base, No. 38-081-55-15. CD 9/25/51.

† N. C., Fort Bragg — MAINTENANCE BLDG. — BA About 12/13—U. S. Eng., 308 Customhouse, Wilmington, approx. 11,000 sq. ft. concrete frame, load-bearing masonry constr. automobile maintenance shop, outside utilities, site imprvs., misc. items of work, Pope Air Force Base, ENG-31-075-55-23. CD 12/26/51, under Public Buildings.

Ky., Covington—BA 12/15—Kenton County Water Dist. No. 1, 11 E. Seventh St., Contr. 3, temporary dam, intake, Licking River. $330,000. Alfred LeFeber & Assoc., Woodburn Ave., Cincinnati, O., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Skinner & Ruddock, King St. exten., Charleston, S. C. LB $323,715, headquarters admin. bldg., Shaw Air Force Base, ENG-38-081-55-5, SUMTER, S. C. U. S. Eng., Customhouse, Charleston, S. C. Bids Oct. 28. CD 10/6.

FLORIDA—State Road Dpt., Tallahassee,
Cleary Brothers Constr. Co., Box 6815, West Palm Beach, Fla. LB. $318,885. Matanzas Inlet Bridge and approaches, State Road A-1-A, F-030-1 (4), Job 7804-203, St. Johns Co. Bids Nov. 1. CD 10/22.

▲ FLORIDA—State Road Dpt., Tallahassee,
Faulk & Coleman Constr. Co., Tallahassee, Fla., LB, $117,419 imprv. 3.5 mi. State Road S-390, Job 4660-150, Bay Co.; LB $136,290, 5 mi. State Road S-167, Job 4661-150, Bay Co.;
Marion Constr. Co., Ocala, Fla., LB, $789,957, 17.234 mi. State Road 500, Job 3607-109, Marion Co.;
White Constr. Co., Williston, Fla., LB, $293,224, 13.89 mi. State Road S-329, Job 3656-150, Marion Co.;

(Continued on page 116)

Simplified Concrete Forming System

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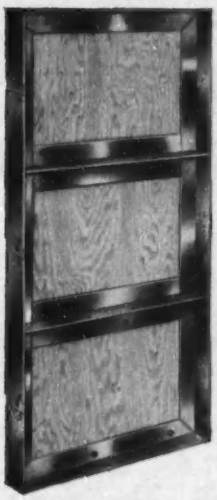
3 BASIC ELEMENTS



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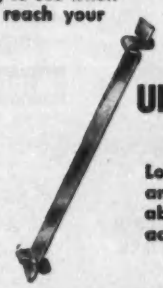


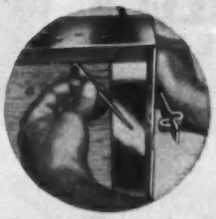
UNI-FORM Tie

Locks, spreads and ties . . . absolutely accurate.

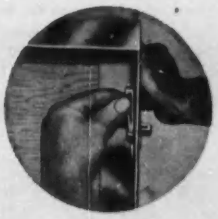
UNI-FORM Tie Key

Wedge-Shaped for fast, easy insertion.

3 SIMPLE OPERATIONS



1 Place the Uni-Form Tie Loop into the Tie Hole.



2 Set the Tie Key into the Tie Loop. Panel and Tie are then locked into one integral unit.

3 Bring the next UNI-FORM Panel into position . . . insert the Tie Key. The assembly is now completed.

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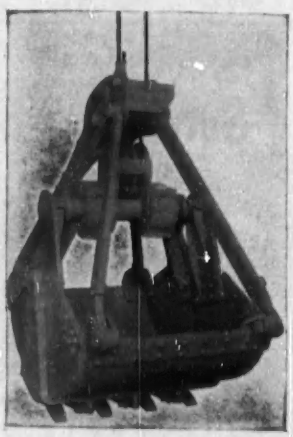

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(Continued from page 114)

Industrial Constr. Co., Box 2797, Jacksonville, Fla., LB, $181,538, 9.216 mi. State Road S-316, Job 3658-150, Marion Co.;
M. J. Carroll Constr. Co., Box 822, Leesburg, Fla., LB, $1,371,351, 12.347 mi. State Roads 900 and 600 Job 7501-102, Orange Co.
rejected bids Nov. 1, 3.4 mi. State Road 500, Levy Co., will re-advertise. Bids Nov. 1. CD 10/22.

† H. & F. Engineering Co., Inc., P.O. Box 315, Jackson, Miss. CA $107,775. pumping stations, drainage structures at Bawcomville in Ouachita Parish, LOUISIANA. U. S. Eng., P.O. Box 60, Vicksburg, Miss. Bids Oct. 7, awarded Oct. 8. CD 9/8.

Campbell Morgan Co., Harlan, Ky. LB $386,000. water filtration plant, reservoir, HAZARD, KY. City, Hazard, Ky. Bids Nov. 6. CD 9/7.

BUILDINGS

LOW BIDS AND CONTRACTS

Chicago Bridge & Iron Works, 1412 C & I Life Bldg., Houston, Tex. CA $268,134, storage tanks;
W. Horace Williams Co., 833 Howard Ave., New Orleans, La. CA $434,900. deep water docks;
W. M. Eberhart & Son, Baton Rouge, La. CA $57,136. 2 water supply wells for GRAIN ELEVATOR Proj., BATON ROUGE, LA. Greater Baton Rouge Port Comn., c/o A. Stewart Wallace, Baton Rouge, La. Grand total $760,170. Bids Oct. 20. CD 10/5.

Wm. D. Rommel Co., Inc., 1449 High Ave., Louisville, Ky. CA $250,000. 1½ story, 40x120 ft. brick, STEAM PLANT and METER HOUSE, LOUISVILLE, KY. Kentucky Synthetic Rubber Co., Camp Ground Rd., Louisville, Ky.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† O., Wilmington—TAXIWAY—BA On Or About 11/24—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., new primary taxiway, Clinton County Air Force Base, Serial No. ENG-46-022-55-8.

† O., Dayton—BLDGS. REHABILITATION—BA 11/30—U. S. Eng., P. O. Box 59, Louisville 1, Ky., rehabilitation of bldgs., A.D.C. facilities, incl. remodeling 3 concrete masonry unit bldgs. 40x100 ft., incl. new roofing, new interior partitions, new heating, plumbing and electrical systems; Wright Patterson Air Force Base, Inv. No. ENG. 15-029-55-38. CD 9/27/51.

INDIANA—BA 12/1—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis,
Contract C-33/34, grading, drainage, structures, paving approx. 3.9 mi. in Construction Section C-33/34 Indiana East-West Toll Road, beginning at west side of Christian Creek at Toll Road Centerline Station 5015 plus 49 in Elkhart Co. and extending eastwardly to point about 952 ft. east of County Hy. 113 at Toll Road Centerline Station 5219 plus 00 in Elkhart Co;
Contract C-35, grading, drainage, structures, paving approx. 5.1 mi. in Construction Section C-35, Indiana East-West Toll Road beginning at point about 952 ft. east of County Hy. 113 at Toll Road Centerline Station 5219 plus 00 in Elkhart Co. and extending eastwardly to point about 60 ft. west of Co. Hy. 25 at Toll Road Centerline Station 5489 plus 22.65 in Elkhart Co;
Contract C-36/37, grading, drainage, structures and paving approx. 4.9 mi. Construction Section C-36/37 of Indiana East-West Toll Road beginning at point about 60 ft. west of County Hy. 25 at Toll Road Centerline Station 5489 plus 22.65 in Elkhart Co. and extending eastwardly to point about 1,338 ft. east of County Highway 35 at Toll Road Centerline Station 5750 plus 00 in Elkhart Co. Standard specification for Indiana East-West Toll Road $5; Plans, Special Provisions and Proposal Forms, per set, per construction Section $25; Cross-Sections, per set, per construction Section $25. Soil Plan and Profiles, per set, per Construction Section, $5. CD 2/10.

† O., Dayton—ROCKET STORAGE IGLOO—BA 12/1—U. E. Eng., P. O. Box 59, Louisville 1, Ky., one mounded concrete storage igloo, 60 ft. long; gravel surfaced road, approx. 1,200 lin. ft., Wright Patterson Air Force Base, Inv. No 1. ENG 15-029-55-21. CD 9/27/51.

BIDS ASKED—BUILDINGS

† Wis., Antigo—RECREATION—BA 11/23—U. S. Eng., 428 Federal Office Bldg., Milwaukee, Zone 1, recreation bldg., incl. utilities, walks in vicinity of here, Serial No. ENG-47-013-55-6. Extended date. CD 11/3.

O., Greenhills—SCHOOL—BA 12/8—Greenhills School Dist., Greenhills, 1 story 60x350 ft., brick, concrete, cinder block, steel elementary school, Damon Rd. $350,000. Plans deposit $15. Garriott & Becker, 880 Broadway, Cincinnati, archts. Green & Simes, Mariemont Inn, Mariemont, engrs. CD 4/15.

Ind., Indianapolis—MEDICAL SCIENCE—BA 12/15—Bd. Trustees Indiana University, J. A. Franklin, vice pres., Bloomington, medical science bldg., Indiana University Medical Center. Plans deposit $50. Daggett, Naegele & Daggett, Inc. 1537 Central St., archt. CD 10/20/50.

Ill., Oak Park—Bids Asked—Bramson, Inc., 1107 Lake St., 2 story, 50,000 sq. ft., ladies apparel shop. $500,000. Leichenko Assocs., 225 N. Michigan St. Chicago, Zone 1, archts.

Mich., Saginaw—FACTORY—Bids Asked—Saginaw Div. Eaton Mfg. Co., Herbert F. Russell, mgr., 1000 Rust St., 1 story, 12,000 sq. ft. factory addn. $85,000. George S. Rider, Terminal Tower, Cleveland, O., archt.

(Continued on page 118)

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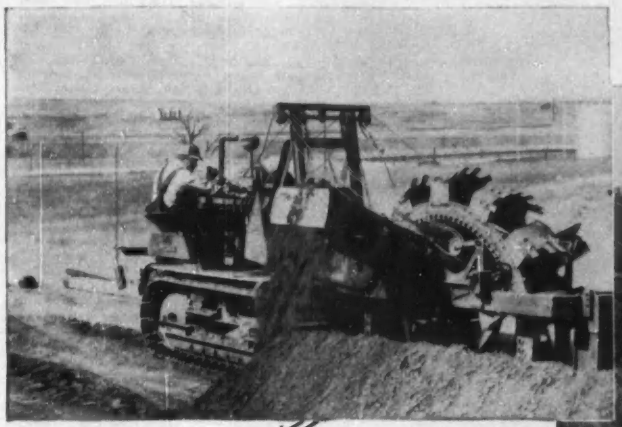

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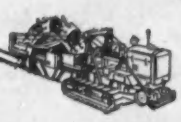

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(Continued from page 116)

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Ill., Cicero—GRANDSTAND—Sportsman Park Race Track, 3301 S. Laramie St., soon lets contract grandstand addn. $350,000. D. B. Cheskin, 407 S. Dearborn St., Chicago, Zone 5, engr.

SOON LETS CONTRACTS—BUILDINGS

Ill., Chicago—SCHOOL—St. Walters Parish, 11713 S. Maplewood St., soon lets contract school, church and convent. $500,000. Gaul & Voosen, 228 E. Superior St., Zone 11, archts. CD 2/18.

Ill., Chicago—OFFICE—American Dental Assn., 22 E. Superior St., soon lets contract top and side office bldg. addn. $800,000. Childs & Smith, 20 N. Wacker Dr., Zone 6, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

City, City Hall, Cincinnati, O. Own Forces. $600,000. traffic light systems at 100 intersections in area bounded by Broadway and 3rd St., John and 13 Sts., CINCINNATI, O. Awarded Nov. 3. CD 9/10.

▲ **George Sheaf & Co.,** 449 Neilston St., Columbus, O., LB **$1,808,774,** constr.;

Taylor Electric Co., Inc., 2742 Sylvania St., Toledo, O., LB **$182,914,** electrical work for Collins Park Filtration Plant, TOLEDO, O. City, Safety Bldg., Toledo, O. Bids Nov. 3. CD 9/28.

† **U. S. Eng.,** 420 Locust St., St. Louis 2, Mo., cancelled bids to have been opened Dec. 1, levees, Degognia and Fountain Bluff Levee and Drainage Dist., Proj. Item V-B, Jackson Co., CIVENG-23-065-55-30, ILLINOIS. Will re-advertise. CD 11/3.

† **Abbot Constr. Co.,** 5789 N. Lincoln Ave., Chicago, Ill., LB **$194,670,** addnl. facilities for Special AAA at Site 51 and Site C-61, Cook and Du Page Counties, ENG-11-032-55-10, ILLINOIS. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Oct. 8. CD 9/30.

▲ **Santucci Constr. Co.,** 5035 Church St., Skokie, Ill., LB **$1,556,800,** Howard St. Intercepting Sewer, Skokie, CHICAGO, ILL. Sanitary District of Chicago, 910 S. Michigan Ave., Chicago 5, Ill. Bids Oct. 14.

Herlihy Midcontinent Co., 135 S. La Salle St., Chicago, Ill., LB **$113,640,** elevated reconstruction of Congress Expressway, CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 9/13/51.

Standard Paving Co., 300 W. Washington St., Chicago 6, Ill., CA, **$649,933,** b. conc, paving 147 St. from Cicero Ave. to Dixie Hy., near CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. Awarded Nov. 3. CD 10/20.

White Constr. Co., 1735 W. Fullerton St., Chicago, Ill., CA, **$64,777,** paving, drainage Lake Shore Dr., Cedar St. to Belmont Ave., CHICAGO, ILL. Chicago Park District, 425 E. 14 St., Chicago 5, Ill. CD 5/10, awarded Nov. 1.

Keno Constr. Co., 3080 Skokie Hy., Highland Park, Ill., LB, water reservoir;

Santucci Constr. Co., 5025 Church St., Skokie, Ill., LB, water mains, at Oakton and Harlem Ave., MORTON GROVE, ILL. Total est., **$373,063.** Village, village Hall, Morton Grove, Ill. Edwin Hancock Eng. Co., 1509 W. Jackson St., Chicago, Ill., engrs.

† **H. P. Reger & Co.,** 1501 E. 72 Pl., Chicago, Ill., CA **$530,208,** steam line for hospital and dental clinic, incl. boiler plant alterations, Serial No. ENG-11-032-55-5, SCOTT AIR FORCE BASE, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill.

Wenzel & Hanson, 1524 N. 27 St., Milwaukee, Wis., LB **$149,987,** heating system at Asylum Group, WAUWATOSA, WIS. Milwaukee County Institutions & Dpts., Wauwatosa, Wis. Bids Oct. 28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **J. L. Simmons Co., Inc.,** Inland Bldg., Indianapolis, Ind., CA **$2,964,562,** ADJUTANT GENERALS SCHOOL and FINANCE SCHOOL, ENG-11-032-55-4, FORT BENJAMIN HARRISON, IND. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Oct. 12. CD 9/27.

Peter Schumacher & Sons, Inc., 321 Spring St., Mishawaka, Ind., CA **$300,000,** Fisher Memorial DORMITORY addn., SOUTH BEND, IND. Notre Dame University, South Bend, Ind. Holabird, Root & Burgee, 180 N. Wabash St., Chicago 1, Ill., archts. Awarded Oct. 21. CD 9/27.

Gawley Constr. Co., 7643 S. Kedzie St., Chicago, Ill., LB **$400,000.** CHURCH, CHICAGO, ILL. St. Bede's Parish, 4600 W. 83 St., Chicago, Ill. Bid Oct. 31. CD 10/27.

Missner Constr. Co., 2940 N. Campbell St., Chicago, Ill., CA, **$350,000.** Memorial CHAPEL, GARAGE and parking area CHICAGO, ILL. Sam S. Piser, 5206 N. Broadway, Chicago, Ill. Bids Oct. 13, awarded Nov. 1. CD 10/6.

T. S. Willis, 20 E. Milwaukee Ave., Janesville, Wis., LB **$394,590,** HOSPITAL, HARVARD, ILL. Harvard Community Memorial Hospital Dist., Harvard, Ill. Bids Oct. 14. CD 9/29.

† **U. S. Eng.,** 1900 Cadillac Tower, Detroit, Mich., rejected bids Oct. 6, MAINTENANCE SHOPS near Alpena and Grand Marais, ALPENA, MICH. Will re-advertise. CD 9/30.

C. D. Barnes Associates, Inc., 1310 Wallen St. S. W. Grand Rapids, Mich. CA **$325,791.** general contract Elementary SCHOOL with LIBRARY, HOLLAND, MICH. City, Bd. Educ., Holland, Mich. Bids Oct. 20. CD 9/30.

Baker Constr. Co., Green Bay, Wis. CA **$343,694.** general contract, 3 tiers 45x198 ft. STATE HOUSE of CORRECTION, MARQUETTE, MICH. State, A. N. Languis, dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Oct. 12. CD 9/15.

▲ **O. W. Burke Co.,** 1032 Fisher Bldg., Detroit, Mich. CA Est. **$1,600,000.** 4 story, brick, steel insurance OFFICE Woodward near Merrill Sts., ROYAL OAK, MICH. Michigan Life Insurance Co., 2988 E. Grand Blvd., Detroit, Mich. CD 8/11.

A. N. Hickson, Inc., 14841 Wyoming St., Detroit 38, Mich. CA **$508,500,** HIGH SCHOOL, SOUTH LYON, MICH. South Lyon Twp., Bd. Educ., South Lyon, Mich. Bids Oct. 6 CD 9/16.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Nebraska**—BA On Or About 11/23—U. S. Eng., 1709 Jackson St., Omaha, constr. and repair standard dikes and revetment under Project Missouri River, Sioux City to Omaha in or immediately adjacent to the Missouri River at Upper Black Bird-Upper Decatur Bends, near Decatur, Inv. No. CIVENG-25-066-55-64. CD 9/15.

Mo., Kirkwood (St. Louis 22 P.O.)—BA 11/24—City, Wm. C. Mason, city clk., Contr. A Swan Pumping Station; Contr. D Park Pumping Station. C. T. Temme, City Hall, city engr. CD 1/26.

Tex., Fort Worth—BA 11/26—City, c/o W. O. Jones, city mgr., City Hall, Contr. 5, Holly Water Plant for pumping plant imprvs. and installation two 28 m.g.d. pumping units and piping revisions. $143,000. Plans deposit $25. Freese & Nichols, 407 Dancigar Bldg., engrs. CD 10/2/52.

† **Ark., Blytheville**—WATER PLANT—BA 11/29—U. S. Eng., 300 Broadway, Little Rock, rehabilitation water plant, Blytheville Air Force Base, ENG-03-050-55-19. Extended date. CD 11/4.

† **Arkansas**—BA 11/30—U. S. Eng., P.O. Box 60, Vicksburg, Miss., constr. approx. 404,000 cu. yd. earthwork on north bank of Arkansas River in Jefferson Co.

† **Montana**—BA 11/30—Bureau Reclamation, Dpt. Interior, Billings, constr. O'Fallon Creek sub-station, transmission line ties, Fort Peck Proj., Spec. DC 4265. Extended date. L. N. McClellan, Bldg. 1 A, Denver Federal Center, Denver, Colo., ch. engr. CD 10/12.

† **Nebraska**—BA 11/30—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., earth lining of Franklin Canal, Bostwick Div., Harlan and Franklin Counties, Spec. DC 4289. CD 5/25/44.

† **South Dakota**—STEEL TOWERS—BA 11/30—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., single-circuit steel towers for Gavins Point Tap-Gavins Point 115-kilovolt transmission line, Transmission Div., Missouri River Basin Proj., Inv. No. DS-4271. Extended date.

† **Nebraska**—BA On Or About 12/8—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. constr. Townsite and Public Use Facilities, Harlan County Reservoir, near Republican City, CIVENG-23-028-55-17. CD 6/17/43.

† **South Dakota**—TRANSFORMERS—BA 12/9—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Pierre, Schedule 1, Item 1, one 50-Kva, 2,400/4,160 wye-to 120/240-volt, single-phase, oil-immersed, self-cooled, outdoor distr. transformer, Item 2, one 3-kva, 2,400/4,160 wye-to 120/240-volt, single-phase, oil-immersed, self-cooled, outdoor distr. transformer; Schedule 2, Item 3, three single-phase, 7,200/12,470 wye volts, 60-cycle, outdoor oil-immersed, wound-type potential transformers, Item 4, three single-phase, 2,400/4,160 wye volts, 60-cycle, outdoor, oil-immersed or compound-filled, wound-type potential transformers; Item 5, nine single-phase, 60-cycle, outdoor, compound-filled, wound-type, side-connected, current transformers; Item 6, six single-phase, 60-cycle, outdoor, compound-filled, wound-type, side-connected current transformers; Schedule 3, Item 7, three 121-kilovolt, station-type lightning arrestors for Pierre Sub-station, Transmission Div., Missouri River Basin Proj., Inv. No. DS 4287.

BIDS ASKED—BUILDINGS

Colo., Denver—HOUSING—BA 12/2—Denver Housing Auth., 1449 Navajo St., 220-unit housing between 9 and 10 and Decatur and Platte River. Over $300,000. Eugene D. Sternberg, 2434 East 3 Ave., engr.-archt. CD 9/9.

Tex., San Antonio—SHOPPING CENTER—Bids Asked—Wonder Shopping Center, 918 Manor Dr., shopping center. $310,000. Johnson, Chanault & Collins, 918 Manor Dr., archts. CD 11/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA and WISCONSIN—Minnesota State Hy. Dpt., 1246 University Ave., St. Paul, Minn. and Wisconsin State Hy. Comn., State Office Bldg., Madison, Wis.,

J. F. Beasley Constr. Co., 20 N. Wacker Dr., Chicago, Ill. LB **$301,330.** about 405 ft. steel, deck girder 3-span with center cantilever, bridge over St. Croix River (interstate proj.) between Taylors Falls, Minn. and St. Croix Falls, Wis. Polk Co., Wis. and Chisago Co., Minn. Bids Nov. 4. CD 10/12.

SOUTH DAKOTA—State Hy. Comn., Pierre,

Northwestern Eng. Co., 1311 St. Joe St., Rapid City, S. D., CA **$212,651.** grading, sub-base, base course etc. 0.981 mi. SPP 3 (St. Work), Pennington Co. Bids Oct. 28. CD 10/15.

† **Bureau Reclamation, Dpt. Interior,** Superior, Neb. rejected bids Oct. 20, placing soil-cement lining for Franklin Canal, Station 80 plus 54 to 137 plus 92.5, Missouri River Basin Proj., Spec. DC 4266, Naponee, Harland and Franklin Counties, NEBRASKA-KANSAS. CD 10/8.

▲† **Peter Kiewit Sons' Co.,** Southeast Station, Wichita 17, Kan. LB **$2,771,929.** airfield pavement at Smoky Hill Air Force Base, Inv. 23-028-55-19, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Oct. 29. CD 10/12.

▲† **Peter Kiewit Sons Co.,** Box 3008, South East Station, Wichita, Kan., CA **$2,684,668.** airfield paving, Altus Air Force Base, Inv. No. Eng-34-066-55-16, ALTUS, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Oct. 21. CD 10/26, under LB.

F. L. Gaines & Son, Miami, Okla., CA **$106,615,** est. $150,000, earthen dam, reservoir and pipe line, BARNSDALL, OKLA. City, Barnsdall, Okla. Bids Oct. 26, awarded Oct. 28. CD 10/12.

▲† **J. W. Bateson Constr. Co., Inc.,** 400 Gibraltar Life Bldg., Dallas, Tex., CA **$2,325,309.** general contract warehousing in Area "A", Tinker Air Force Base, ENG-34-066-55-15, OKLAHOMA CITY, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Oct. 28. CD 11/3, under LB.

† **Suggs Constr. Co.,** P.O. Box 349, Big Spring, Tex., CA **$68,107,** post exchange, Webb Air Force Base, Inv. ENG-29-005-55-25, BIG SPRING, TEX. U. S. Eng., P.O. Box 1538, Albuquerque, N. M. Bids Oct. 20. CD 9/29.

Heidenfels Bros., Box 1917, Corpus Christi, Tex., LB **$315,926,** storm sewers, Proctor-Brawner St., CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. Bids Oct. 29.

City, City Hall, Main and Harwood Sts., Dallas, Tex. Own Forces **$110,000,** mercury vapor lighting of sects. of Central Expressway; **$78,500,** installing 290 mercury vapor street lights on 7 residential streets, DALLAS, TEX. CD 9/20.

City, Denton, Tex. Force Account. **$75,000,** c.i. water distr. lines, DENTON, TEX. CD 9/29.

Aid Utility Co., c/o owners, CA **$60,000** natural gas sys., HOUSTON, TEX. Twenty One Realty Co., c/o D. E. Carter, pres., c/o Deutser Bros., Shell Bldg., Houston, Tex.

Aid Utility Co., c/o owners. CA **$41,216,** c.i. water lines, facilities, HOUSTON, TEX. Twenty One Realty Co., c/o D. E. Carter pres., c/o Deutser Bros., Shell Bldg., Houston, Tex.

Aid Utility Co., c/o owners, CA **$67,117,** constr. of asph. paved streets, HOUSTON, TEX. Twenty One Realty Co., c/o D. E. Carter, pres., c/o Deutser Bros., Shell Bldg., Houston, Tex.

Aid Utility Co., c/o owners, CA **$61,000,** storm sewers; CA **$63,276,** sanitary sewers, HOUSTON, TEX. Twenty One Realty Co., D. E. Carter, pres., c/o Deutser Bros., Shell Bldg., Houston, Tex. CD 6/25.

† **Bureau Yards & Docks,** Dpt. Navy, Naval Air Station, Corpus Christi, Tex., rejected bids Oct. 7, 500,000 gal. elevated steel water storage tank, NOY 81860, KINGSVILLE, TEX. LB **$99,900.** CD 10/12, under LB.

Texas Power & Light Co., Interurban Bldg., Dallas, Tex. Own Forces. **$75,000,** electric street lighting exten. and sys. imprv., LANCASTER, TEX.

City, Laredo, Tex., Own Forces. **$38,000,** c.i. water distr. lines, LAREDO, TEX. CD 8/12.

City, Timpson, Tex. Own Forces. **$45,000,** water distr. lines, TIMPSON, TEX. J. M. Lloyd & Assocs., Tyler, Tex., engrs.

City, Timpson, Tex., Own Forces. **$60,000,** road grading, drainage, surf., TIMPSON, TEX. J. M. Lloyd & Assocs., Tyler, Tex., engrs.

Line Builders, Inc., N. P. Ind. Site, Billings, Mont., CA, **$196,000.** 103.67 mi. new line, line changes, and sub-station at Meeker, COLORADO. White River Electric Assn., Inc., Meeker, Colo. Awarded Nov. 1. Miner & Miner, 905 16 St., Greeley, Colo., engrs.-archts. CD 9/17/52.

R. T. Bickhard Constr. Co., 4001 Jason St., Denver, Colo., CA, **$610,299.** Reservoir, Capitol Hills, Basin No. 3, DENVER, COLO. Bd. Water Comrs., City Hall, Denver, Colo. Bids Oct. 25, awarded Nov. 1. CD 11/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

P. A. Laurence Co., Builders Exchange Bldg., Minneapolis, Minn. CA **$124,000.** general contract CREAMERY and MILK PLANT, INTERNATIONAL FALLS, MINN. Baxter Boe, International Falls, Minn. M. & G. Buetow, 1931 University Ave., St. Paul, Minn., archt.

▲ **H. Gunnarson Co.,** 5153 N. Clark St., Chicago, Ill. CA **$2,000,000.** general contract,

Bjorkman Bros. Co., 708 S. 10 St., Minneapolis, Minn. CA Approx. **$500,000.** mechanical contract superstructure 1 and 2 story, 170x566 ft. food processing PLANT with 3 annexes, NEW ULM, MINN. Kraft Foods Co., 500 N. Peshtigo St., Chicago, Ill. Bids Sept. 8. CD 7/27.

▲ **Northern States Power Co.,** 15 S. Fifth St., Minneapolis, Minn. Own Forces. **$1,300,000.** Merriam Park SUB-STATION at Snelling and Randolph Aves., ST. PAUL, MINN. CD 6/14/65.

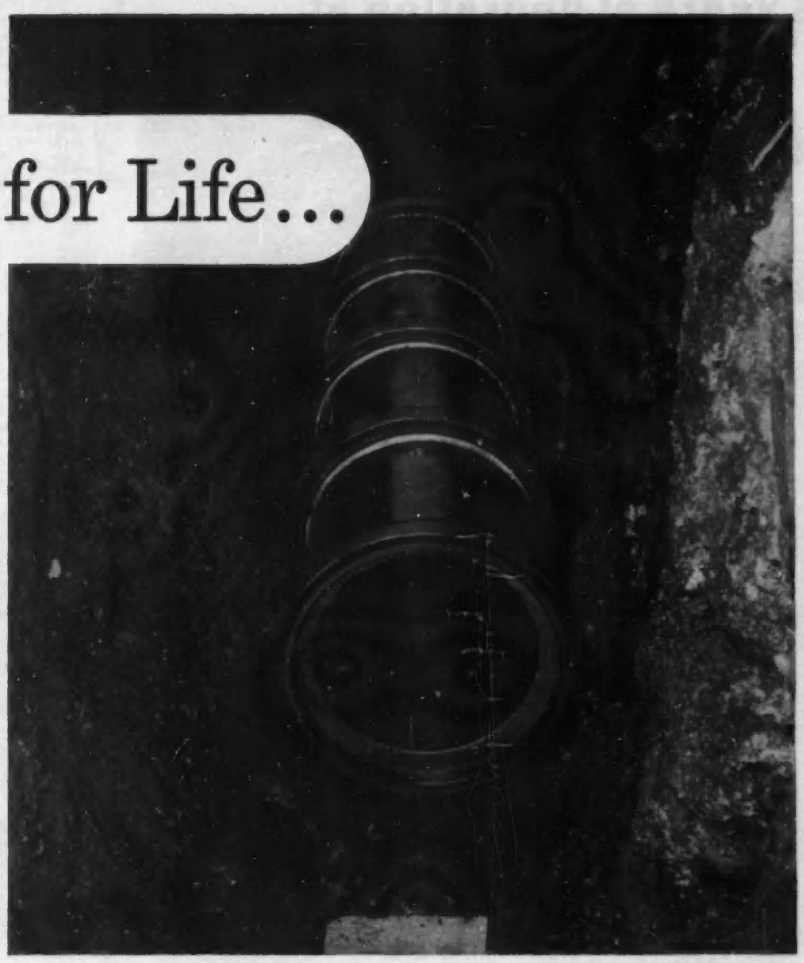
C. Ralio Contg. Co., Inc., 5000 Kemper Ave., St. Louis 9, Mo. CA Est. **$300,000.** 1 story, ground floor, 73x77 ft., 22x28 ft., 27x29 ft., 17x54 ft., 54x102 ft. irregular shape CHURCH and SCHOOL, on 11 acre tract on Sappington Rd. south of Lindbergh Blvd., ST. LOUIS COUNTY, MO. St. Catherine Laboure Catholic Parish, c/o Rev. Wendelin Dunker, archdiocesan bldg. comn., Rev. James R. Hartnett, exec. secy, 3810 Lindell Blvd., St. Louis 8, Mo. Bids Oct. 8. CD 10/20.

▲ **R. D. Farnsworth & Co., Inc.,** 1515 S. Salcedo St., New Orleans, La., LB, **$1,466,800** general contract;

Fischer Heating & Plumbing Co., 367 Adams St., Memphis, Tenn., LB, **$1,018,988,** mechanical work for 9

(Continued on page 120)

Linked for Life...



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(Continued from page 118)

story EDUCATIONAL WING at State Medical Center, LITTLE ROCK, ARK. University of Arkansas, Little Rock, Ark. Howard Eichenbaum, Wallace Bldg., Little Rock, Ark., archt. CD 12/29/49.

C. A. Doolittle Jr. Constr. Co., 335 N. Waco St., Wichita, Kan. CA $755,462. EDUCATIONAL BLDG., WICHITA, KAN. First Baptist Church, Second and Broadway, Wichita, Kan. CD 11/3, under LB.

▲ Jimmy Hill, Pasadena, Tex., and Charlie Swain, 2727 Revere St., Houston, Tex. Force Account, $333,335, 26 DWELLINGS; $361,319, 31 DWELLINGS; $318,075, 21 DWELLINGS, BAYTOWN, TEX. Grand total $1,012,729. CD 9/14.

J. C. Culpepper Const. Div., Bryan, Tex. CA $395,000, Phase 4, 41 DWELLINGS. CA $319,500, Phase 5, 30 DWELLINGS, BRYAN, TEX. J. C. Culpepper, Bryan, Tex. CD 9/24.

▲ E. E. Farrow Co., 6109 Forest Park Rd., Dallas, Tex. CA $1,187,980. ELECTRIC LIGHT and POWER PLANT unit, DENTON, TEX. City, Denton, Tex. CD 9/29.

▲† Robert E. McKee General Contractor, Inc., Box 651, Albuquerque, N. M., and Box 564, El Paso, Tex., CA $5,983,996. constr. 15 BARRACKS of 263-man capacity each, rein.-con. and masonry constr., appurtenances, Fort Bliss, Serial No. ENG-29-005-55-31, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Oct. 26. CD 10/29, under LB.

▲† Robert E. McKee, General Contractor, Inc., Box 651, Albuquerque, N. M., CA $1,917,311, on Schedule A, for 37 BARRACKS, Fort Bliss, Serial No. ENG-29-005-55-32, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Oct. 25. CD 10/29, under LB.

Tommy Thompson, 1007 Penn St., Fort Worth, Tex. Owner Builds. $300,000. 30 frame RESIDENCES, Carol and Crenshaw Sts., FORT WORTH, TEX.

Universal Mills, 401 Kings Hy., Fort Worth, Tex. Owner Builds. $145,000, rein.-con. GRAIN ELEVATOR, FORT WORTH, TEX. CD 10/29.

Trinity Constr. Co., Box 3024, Houston, Tex., CA $375,000. WAREHOUSE, GARLAND, TEX. Oil Well Supply Div. of U. S. Steel Corp., 2001 N. Lamar St., Dallas, Tex. Consolidated Western Steel Co., Garland, Tex., engr. CD 10/11.

O'Donnell Constr. Co., 9102 Jensen St., Houston, Tex. CA $313,185, 20 brick DWELLINGS, concrete slab; CA $377,218, 34 frame, masonry trim dwellings, concrete slab, HOUSTON, TEX. Suburban Homes Lumber Co., 901 Little York St., Houston, Tex. CD 8/31.

Blagden Manning Constr. Div., 4332 Beverly St., Dallas, Tex., CA $350,185, 21 DWELLINGS in 2nd sec. off Richardson Rd., CA $331,160, 26 DWELLINGS, RICHARDSON, TEX. Blagden Manning & Assocs., 4332 Beverly St., Dallas, Tex. CD 10/1.

C. L. Hendrick & Sons, 2111 N. 21 St., Waco, Tex. LB $388,115. 3 story bsmnt., 84x105 ft., rein.-con. fdn. and frame, brick exterior, EDUCATIONAL WING, WACO, TEX. Columbus Avenue Baptist Church, 1300 Columbus Ave., Waco, Tex. Bids Oct. 28. CD 9/30.

▲† Walter Nashert Co., 16 N.E. 27 St., Oklahoma City, Okla., CA, $2,777,308, 6 EM DORMITORIES, Inv. 25-066-55-28, CAMP CARSON, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 26, awarded Oct. 29. CD 10/29, under LB.

▲ American Builders, Inc., 5600 Arvilla Ave., N.E., Albuquerque, N. M., Separate Contracts, $30,000,000. 2,250 RESIDENCES, SCHOOLS, PARKS, SHOPPING CENTER between Fort Carson and Peterson Field, COLORADO SPRINGS, COLO.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Calif., Inyokern—BA 11/30—Officer In Charge of Constr., P. Wks. Bldg. 981, U. S. Naval Ordnance Test Station Inyokern, water supply and distr. NOY 82954, Spec. 42826. CD 2/1/52, under Public Buildings.

† Nev., Las Vegas—AIR BASE BLDGS.—BA 12/7—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., squad H. Q. and operations bldg., Nellis Air Force Base. ENG-04-353-55-52. $100,000. CD 9/2.

† Washington—BA 12/8—U. S. Eng., Pittock Block, Portland, Ore., constr. interior drains at Kennewick Levees 5-D and 15-D, Kennewick, Mason Co., CIVENG-45-165-55-A0. A. H. Miller, City-County Airport, Walla Walla, engr. CD 10/25.

† Washington—BA 1/4—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 4 main control steel switchboards for Chief Joseph Dam Powerhouse, Bridgeport, Inv. 55-24.

BIDS ASKED—BUILDINGS

Calif., Long Beach—CLASSROOM—BA 12/1—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, classroom addn. at Long Beach State College. $330,000 Plans deposit $25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise, Holmes Constr. Co., Heyburn, Idaho, CA $93,207 roadway, roadmix bit. surf. 2.093 mi. U.S. 30 south, Cassia Co. Bids Oct. 19, awarded Oct. 28.

† T. & T. Eng. Co., 1275 E. 2nd St., Reno, Nev., CA $299,680, two airmens' dormitories, Schedules B, Stead Air Force Base, ENG-04-203-55-16, RENO, Nev. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Sept. 21. CD 9/29, under LB.

WASHINGTON—State Hy. Comm., Olympia, L. Dickson Co., 5115 S. Pine St., Tacoma, Wash., CA $578,448 imprv. 3.69 mi. Primary State Hy. No. 2, King Co. Bids Nov. 4, awarded Nov. 5. CD 10/21.

(Continued on page 123)

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(Continued from page 120)

WASHINGTON—State Hy. Comn., Olympia.

F. R. Hewett, E. 5916 Baldwin Ave., Spokane, Wash., LB $133,186, 4.52 mi. Primary State Hy. No. 7, Grant Co. Bids Nov. 4. CD 10/21.

† **Bonneville Power Admin.**, 1001 N. E. Lloyd Blvd., Portland, Ore., cancelled bids to have been opened Oct. 21, Sch. IV, Chief Joseph-Snohomish, 345-kv lines 3 and 4, 20.7 mi., Inv. 7487, Snohomish Co., WASHINGTON. L. C. Stewart, 1001 N. E. Lloyd Blvd., Portland, Ore., engr. CD 9/30.

† **Henly Constr. Co.**, Yakima, Wash., CA $580,327, est. $797,024, Sch. 1, earthwork, structure for Naylor siphon, Station 1 plus 24.94 Ah. to 85 plus 50, Lateral W20, West canal laterals, Block 89, utilizing monolithic concrete in siphon Columbia Basin Proj. Spec. DC 4246, WASHINGTON Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Sept. 30, awarded Oct. 26. CD 10/13, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento.

L. C. Smith Co., 225 19 Ave., San Mateo, Calif., LB $1,198,516 grading, surf. 2.1 mi. between Los Gatos and Roberts Rd., Santa Clara Co. Bids Oct. 27. CD 10/7.

▲ **CALIFORNIA**—State Div. Hys., Sacramento.

Fredrickson & Watson Constr. Co. and M & K Corp., 873 81 Ave., Oakland, Calif., CA $5,107,822, constr. 6-lane divided freeway on a realignment section of U.S. 40, Contra Costa Co. Bids Oct. 20. CD 10/26, under LB.

† **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif., LB $424,107, armament and electronics shop, ENG-04-203-55-3, CASTLE AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Nov. 3. CD 10/7.

Glanville Plumbing Co., 3231 Belle Terrace, Bakersfield, Calif., LB, $276,131, est. $457,321 sanitary sewers, appurtenances in Ballantyne Lane, EL CAJON, CALIF. City, 270 Highland Ave., El Cajon, Calif. Bids Nov. 1. CD 10/18.

Frank's Dredging Co., Pier E, Berth 120, Long Beach, Calif., LB, $141,155, West Beach area fill, LONG BEACH, CALIF. City, 205 W. Broadway, Long Beach, Calif. Bids Oct. 28. CD 1/16/52.

Los Angeles County Sanitation Dist. No. 2, 2020 Beverly Blvd., Los Angeles, Calif., Force Account, Joint Outfall "A" Unit 1, C, Section 4, tunnel, San Pedro District, LOS ANGELES, CALIF. Bids rejected. CD 10/19, under LB.

Julio Tomei, 4737 Orion Ave., Los Angeles, Calif., LB $399,626, est. $500,000 imprv. Hill St., Temple to First Sts., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Oct. 27. CD 10/14.

▲ **McCammon-Wunderlich Co.**, Box 359, Palo Alto, Calif., CA, $1,334,489, est. $1,000,000 enlarging lower Stone Canyon Reservoir, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids Oct. 15. CD 10/20, under LB.

▲† **Vinnell Co., Inc.**, 1145 Westminster Ave., Alhambra, Calif., LB $1,453,989, heavy bomber maintenance hangar, Edwards Air Force Base, ENG-04-353-55-40 MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 2. CD 10/7.

† **Robert J. Genofile**, 3712 Park Place, Montrose, Calif., CA $134,956, rocket storage, checkout and assembly bldg., Unit C, Oxnard Air Force Base, Serial No. ENG-04-353-55-37, OXNARD, CALIF. U. S. Eng., P. O. Box 17277 Foy Station, Los Angeles 17, Calif. CD 9/9.

Royal Pipe Line Constr. Co., Rt. 1, Box 450B, San Diego, Calif., CA, $69,041, small water mains, Group 16, SAN DIEGO, CALIF. City, Civic Center, San Diego, Calif. Bids Oct. 27. CD 10/18.

Healy-Tibbitts Constr. Co., 411 Brannan St., San Francisco, Calif., LB, $154,530, Mendell St. Outlet and sanitary sewers between Davidson Ave. and Arthur St., SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Oct. 27.

Chas. L. Harney, Inc., 575 Berry St., San Francisco, Calif., LB, $83,956, widening 13 St. from Mission to South Van Ness St., SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Oct. 27.

R. Flatland, 440 Fulton Rd., San Mateo, Calif., LB, $86,825, traffic signals etc. at various crossings, Contract 13, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Nov. 3. CD 10/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Donald Brothers, 6060 W. Adams Blvd., Los Angeles, Calif., LB $903,680, est. $750,000 169,000 sq. ft. BAKERY PLANT, BELL GARDENS, CALIF. Langendoff Bakery Co., c/o Bennett & Bennett, archts., 1165 E. Colorado St., Pasadena, Calif. Bids Oct. 27. CD 10/18.

Bakker Constr. Co., 2217 Mountain View, San Bernardino, Calif., CA, $356,873, GYMNASIUM, Fontana High School, FONTANA, CALIF. Chaffey Union High School Dist, Ontario, Calif. Bids Oct. 26. CD 10/18.

Odell Constr. Co., 209 W. Dalton Rd., San Gabriel, Calif., LB, $320,555, Horace Mann SCHOOL addn., GLENDALE, CALIF. Glendale Unified School Dist., 441 E. Wilson Ave., Glendale, Calif. Bids Oct. 28. Orr, Strange & Inslee, 3142 Wilshire Blvd., Los Angeles, Calif., archts. CD 6/2/53.

Berman & Garber, 9430 Santa Monica Blvd., Los Angeles, Calif. Owner Builds. $649,000, 59 frame, stucco DWELLINGS, Dexler, Fonda and Colfax Sts., LA HABRA, CALIF.

Hudson Constr. Co., 1277 W. 24 St., Los Angeles, Calif., CA, $328,440, Plaza Del Rey SCHOOL, Venice, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Oct. 14. M. H. Robertson, 1814 W. 2 St., Los Angeles, Calif., archt. CD 6/13/52.

▲ **Steed Brothers**, Box 350, Alhambra, Calif., CA, $1,174,000, Fulton Junior High SCHOOL addn., LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Oct. 19, awarded Oct. 29. CD 10/26, under LB.

Smith-Campbell Co., 6510 Cherry Ave., Long Beach, Calif., LB, $466,000, 1 story reinforced brick elementary school, PUENTE, CALIF. Hudson School Dist., 15839 E. Rowland St., Puente, Calif. Bids Oct. 28. CD 10/14.

Jomax Builders, 548 San Vicente Blvd., Los Angeles, Calif. Owner Builds, $481,000 65 frame, stucco DWELLINGS, Flynn and Orrington Sts., PUENTE, CALIF.

George Voss, 570 7 St., San Bernardino, Calif. Owner Builds, $187,000, 120x266 ft., rein.-con. WAREHOUSE, 960 Oak St., SAN BERNARDINO, CALIF.

▲ **Halvorson Constr. Co.**, 20054 Pacific Hy. S., Seattle, Wash., LB, $1,311,417, general contract, 5 buildings of 168,000 sq. ft., steel frame HIGH SCHOOL SEATTLE, WASH. Shoreline School Dist., E. 188 St. and 20 Ave. N.E., Seattle, Wash. Bids Nov. 4.

Milton Kauffman Constr. Co., 2918 W. Compton Blvd., Gardena, Calif. Owner Builds. $306,800. 38 frame, stucco DWELLINGS, Embradero Ave. and Delane St., TORRANCE, CALIF.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Ajax—BA 11/25—Improvement District of Ajax, Ajax, 112x115 ft., incl. tanks, sewage treatment plant, incl: tanks, pumping station, screen house, digestor tank, $100,000. Gore & Storrie, 1130 Bay St., Toronto, engrs.

BIDS ASKED—BUILDINGS

B. C., Nanaimo—SCHOOL—BA 11/30—School District 68, Nanaimo, 2 story, concrete, brick school, Strathmore St. $600,000. McArravy & Barley, Addison Bldg., archts.

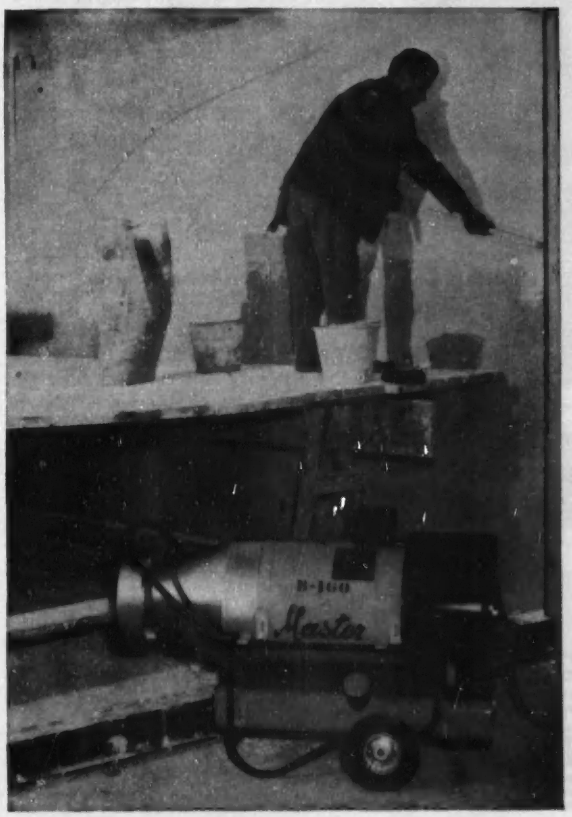
N. B., Fredericton — BARRACKS BLOCKS, etc. — BA 12/2—Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. two barrack blocks and mess, Canadian Army Camp, Gagetown. H. Ross Wiggs, 4350 Sherbrooke St. W., Montreal, Que., engr. CD 8/1/52.

N. B., Fredericton—CAMP—BA 12/9—Defence Constr. (1951)• Ltd., 56 Lyon St., Ottawa, Ont., 8 camp buildings at army camp, Gagetown. H. Ross Wiggs, 4350 Sherbrooke St. W., Montreal, Que., engr. CD 8/1/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Canadian National Rys.**, R. O. Stewart, ch. engr., 366 McGill St., Montreal, Que. Own Forces, $1,000,000



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For less than 17c an hour in fuel, you can *dry plaster*, fast, even on cold or humid days; pour and *cure concrete* safely at any temperature and *keep men working*, inside or out, in freezing weather.

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The Master Heater rolls into place, starts at the flip of a switch, *blows* clean, odorless heat right where you want it . . . *instantly*. Thermostat and safety controls are fully automatic; combustion so complete you don't need a vent. Burns inexpensive kerosene or fuel oil. Two models—160,000 or 400,000 BTU per hour. For more information mail coupon.

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Speedy Pile Driving and Pile Pulling

On the new Housatonic Bridge connecting Derby and Shelton, Conn., four pieces of McKiernan-Terry equipment were teamed up by the contractor, Mariani Construction Co., for fast pile driving and extracting.

McKiernan-Terry 9B3 and 10B3 Double-Acting Hammers drove 40 to 65-foot steel piles to refusal in rock for four piers and the east abutment.

Cofferdam steel piles, 40 feet in length, were driven by a McKiernan-Terry Double-Acting No. 7 Hammer and quickly removed with a McKiernan-Terry E4 Pile Extractor.

For pile driving versatility, standardize on McKiernan-Terry. Write for bulletin. MK 5118

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extending, remodeling railway yards, EDMUNDSTON, N. B. CD 6/16.

▲ **University Plumbing & Heating Co. Ltd.**, 350 Brimley Ave., Toronto, Ont., CA, $1,207,000, high temperature water distributing sys., Canadian Army Station at Gagetown, FREDERICTON, N. B. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids Sept. 23, awarded Oct. 30. CD 9/9.

Larkey Welding & Steel Constr. Ltd., St. John, Newfoundland, CA, $100,000, heating, oil and water service pipe lines for dock and terminal facilities, PORT AUX BASQUES, NEWFOUNDLAND. Canadian National Rys., R. O. Stewart, ch. engr., 355 McGill St., Montreal, Que

Standard Paving Maritimes Ltd., Lady Hammond Rd., Halifax, N. S., CA, $125,000, sewers, HALIFAX, N. S. Municipality, City Hall, Halifax, N. S. A. C. Harris, City Hall, Halifax, N. S., city engr. CD 7/19/46.

▲ **Argo Constr. Ltd.**, 18 Gladstone Ave., Montreal, Que., CA, $1,283,944, HANGAR at R.C.A.F. Station, Uplands Airport, OTTAWA, ONT. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Bids Oct. 14. CD 9/1.

Carter Constr. Co. Ltd., 419 Cherry St., Toronto, Ont., CA, $849,000, sewage treatment plant at Highland Creek, TORONTO, ONT. Scarborough Twp., 2001 Eglinton Ave. E., Toronto, Ont. Bids Nov. 1. CD 10/7.

A. N. Ball Co. Ltd., 11347 Londros Ave., Montreal, Que., CA, $305,000, hangar addn., R.C.A.F. Station, ST. HUBERT, QUE. Dpt. National Defence, AIR, Ottawa, Ont. Bids Oct. 14. CD 9/20.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Lummas (Canada) Ltd.**, Edmonton, Alta., CA, $1,000,000, PLANT, FORT SASKATCHEWAN, ALTA. Inland Chemicals (Canada) Ltd., Edmonton, Alta. Awarded Oct. 30.

Poole Constr. Co. Ltd., 10503 109 St., Edmonton, Alta., CA, $331,500. adult MENTAL DEFECTIVES BUILDING, Deerhome Bldg., RED DEER, ALTA. Province of Alberta, Dpt. P. Wks., Edmonton, Alta. CD 12/3/43.

▲ **G. A. Baert Constr. Co. Ltd.**, 314 Dawson Rd., Winnipeg, Man., CA $1,300,000, NURSES RESIDENCE and SCHOOL for NURSING, McDermot Ave., WINNIPEG, MAN. Winnipeg General Hospital Bd., Bannatyne Ave., Winnipeg, Man. Bids Oct. 22, awarded Oct. 30.

▲ **B. Perini & Sons (Canada) Ltd.**, 49 Jackes Ave., Toronto, Ont., CA, $9,377,000, 10 story, 358x458 ft. POST OFFICE, Graham Ave., WINNEPEG, MAN. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Oct. 27. CD 11/3, under LB.

E. G. M. Cape & Co., 620 Cathcart St., Montreal, Que., CA, $800,000, DEPARTMENT STORE, Visard St. and Lansdowne Ave., ST. JOHN, N. B. Simpson-Sears Ltd., 176 Yonge St., Toronto, Ont. Margison & Babcock, 119 Isabella St., Toronto, Ont., engrs. Mott & Myles, 13 Germain St., St. John, N. B., archts. F. S. Corley, c/o owner, staff archt. CD 12/14.

Fort Construction & Equipment Ltd., P.O Box 63, Prescott, Ont., CA, $336,339, 40 rental HOUSING UNITS, BROCKVILLE, ONT. Central Mortgage & Housing Corp., 40 Eglinton Ave. E., Toronto, Ont. Bids Oct. 19, awarded Oct. 30. CD 10/13.

Oscar C. Teal & Son, Lakeshore Rd., Fort Erie, Ont., CA, $100,000, 3 story, 40x60 ft. CHEMICAL PLANT addn., FORT ERIE, ONT. The Arner Co. Ltd., Niagara Blvd., Fort Erie, Ont. Awarded Nov. 3.

▲ **Hughes Constr. Co. Ltd.**, 365 Rogers Rd., Toronto, Ont., CA, $2,111,400. HOME FOR THE AGED, NEWMARKET, ONT. Municipality of Metropolitan Toronto, 65 Adelaide St., Toronto, Ont. Bids Oct. 19, awarded Nov. 2. (Correction—contractor). CD 10/28, under CA.

Richard & B. A. Ryan Ltd., 1705 William St., Montreal, Que., CA, $150,000, 1 story, FREIGHT TERMINAL and OFFICE section, Rochester St., near Beech St., OTTAWA, ONT. Terminal Realties & Investments Ltd., c/o T. W. Burge, archt., 7357 Sherbrooke St. W., Montreal, Que. CD 10/19.

Barnett & McQueen Ltd., 460 Christian St., Port Arthur, Ont., CA, $95,000, concrete, steel, brick PRINTERY and newspaper publishers, PORT ARTHUR, ONT. Woodbridge Co. Ltd., 644 Bayview Rd., Toronto, Ont. Barnett & Rieder, 644 Bayview Rd., Toronto, Ont., archts.

Pimlico Investments Ltd., 12 Glen Cedar Rd., Toronto, Ont., Owner Builds, $725,000. seven 74-suite APARTMENT, Lawrence Ave. W., near Pimlico Ave., TORONTO, ONT. M. Sklar, 165 Spadina Ave., Toronto, Ont., archt.

Waldon Investments Ltd., 86 Colburne St., Toronto, Ont. Owner Builds, $675,000, 68-suite, two APARTMENTS, Durham Ave., TORONTO, ONT.

Canadian Constr. Co., 3750 Yonge St., Toronto, Ont. Owner Builds, $600,000, 60 suite, 3 story, steel, brick APARTMENT, Yonge St. north of Don River in Hoggs Hollow Area, TORONTO, ONT. E. I. Richmond, 455 Spadina Ave., Toronto, Ont., archt.

The Foundation Co., Clarke's Sideroad, London, Ont., CA, $618,565, 3 story, bsmt., 101x117 ft., brick, steel, store appliance SHOP and OFFICES, WINDSOR, ONT. Windsor Utilities Comn., Canada Bldg., Windsor, Ont. Bids Oct. 26, awarded Nov. 1.

Julien & Jacobs, Baie Comeau, Que., CA, $400,000. concrete, steel, brick SCHOOL, near Tache Ave., BAIE COMEAU, QUE. Municipality, Baie Comeau, Que. V. Depocas, 3535 Cote de Nieges Rd., Montreal, Que., archt. G. H. Ryland, Town Hall, Baie Comeau, Que., town engr.

Ross & Anglin Ltd., 4400 St. Catherine St. W., Montreal, Que., CA, $110,000. 2 addni. buildings at PLANT, Cote de Liesse Rd., MONTREAL, QUE. E. R. Squibb & Sons of Canada, Ltd., 2245 Vlau St., Montreal, Que.

(Continued on page 126)

Moving Day for the St. Lawrence

Shaded area shows additional facilities which will increase Beauharnois' production to more than 1,400,000 h.p.

MOVING A RIVER may sound fantastic, but the Ellicott-designed "Hydro-Quebec," world's largest hydraulic pipe line dredge, has begun work on a project that will eventually divert practically the entire flow of the St. Lawrence River! The project is part of the expansion program of the Quebec Hydro-Electric Commission. When completed, the Commission's installation at Beauharnois, Quebec, will be the largest single-site hydro-electric plant in the world, with electrical output of more than two million horsepower.

Main work of the "Hydro-Quebec" consists of widening and deepening the 15-mile Beauharnois Canal to provide the necessary volume of water to operate the plant. This channel will also serve as a navigation canal which, when tied in with the proposed St. Lawrence Waterway by locks, will permit passage of ocean going vessels.

* * *

Whether *your* dredging problem is moving rivers or maintaining irrigation canals, or any of a thousand other projects, Ellicott's 67 years of experience in the engineering, design, manufacture, modernization and operation of dredges can help *you*. For more information about Ellicott dredges and dredging services, write for Catalog 825 to: ELLICOTT MACHINE CORPORATION, 1603 Bush Street, Baltimore 30, Md.

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These low-cost, standard model Dragon hydraulic dredges are the economical solution for small jobs. They deliver 150-250 cubic yards of solids an hour, pump up to distances of 3,000 feet, and dredge to depths of 20-26 feet. Ideal for work on canals, lakes, harbors and rivers . . . for providing fill for swamps, beaches and dams. For more details, write for new Bulletin No. 826.

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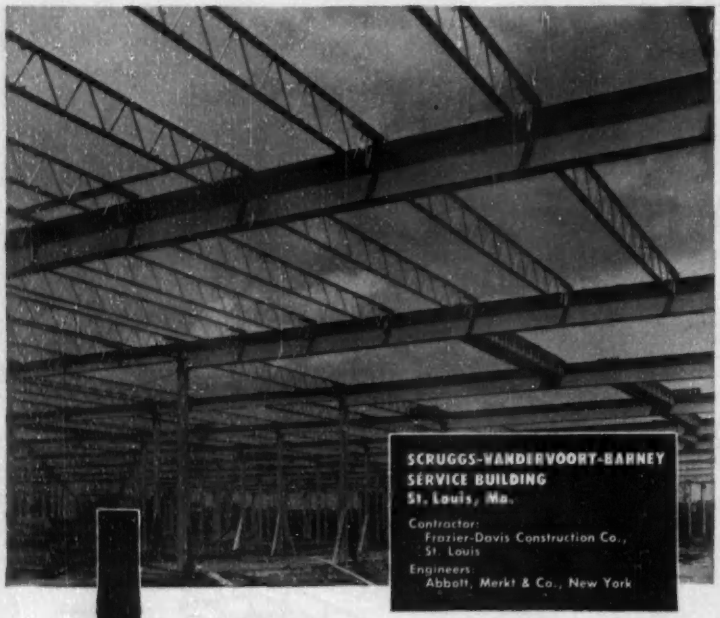

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Centering • Electrical Weld and Gas Weld Tubing

LACLEDE STEEL COMPANY
St. Louis, Mo.

(Continued from page 124)

T. Pringle & Son Ltd., 485 McGill St., Montreal, Que., engrs.

Pigott Constr. Co., 502 Fifth Ave. N., Saskatoon, Sask., CA, $325,865, AMMUNITION MAGAZINES and SERVICES, 5 buildings, Canadian Army Camp, DUNDURN, SASK. Defense Constr. (1951) Ltd., 54 Lyon St., Ottawa, Ont. Awarded Oct. 26.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† Alaska—APRON—BA 12/3—U. S. Eng., Anchorage paving 168,000 sq. ft. access apron to multi-purpose dock, Elelson Air Force Base, Inv. 55-42. Plans deposit $25. CD 11/25/52.

BIDS ASKED—BUILDINGS

† Alaska, Kodiak—HIGH SCHOOL—BA 12/17—Alaska P. Wks., Dpt. Interior, P. O Box 1181, Juneau, 2 story rein.-con., steel classroom and gymnasium addn. to high school, Proj. Aaa 50-A-45. Plans deposit $25. CD 9/17, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† ALASKA—Bureau P. Rds., Dpt. Commerce, Juneau, Keil & Peterman, Juneau, Alaska, CA $731,368, imprv. Douglas Hy. Proj. 31-E Bids Oct. 20. CD 10/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

† Burgess Constr. Co., Box 652, Fairbanks, Alaska, CA $220,000. DORMITORY for University of Alaska., Proj. 50-A-174, COLLEGE, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids Aug. 11. CD 7/19.

U. S. POSSESSIONS

BIDS ASKED—HEAVY CONSTRUCTION

† T. H., Hickam Air Force Base—FUEL PIPE LINES—BA 12/1—U. S. Eng., P. O. Box 2240, Honolulu, bulk fuel pipe lines, ENG-94-620-55-4.

AMERICANS ABROAD

BIDS ASKED—HEAVY CONSTRUCTION

▲ Bids have been opened to U. S. bidders on the following projects under recently announced International competitive bidding of NATO.

GREECE

General Navy Staff of Greece (Dir. of P. Naval Works, Section of Infrastructure Works, GNS/CS-IV), Athens, constr. 4 storage tanks having a total capacity 11,250 cu. meters each and two a capacity of 15,000 cu. meters each. Important features of work incl. underground rock excavations totaling approx. 110,000 cu. meters, 28,000 cu. meters of rein.-con. for lining the underground tunnels, approx. 140,000 sq. meters casting forms and approx. 2,500 sq. meters of surface insulation coatings on Salamis Island, near the Port of Piraeus. constr. 6 storage tanks having a total capacity of 78,000 cu. meters, of which two tanks should have a capacity of 9,000 cu. meters each, and four a capacity of 15,000 cu. meters each, these tanks also are to be excavated as tunnels in rock with rein.-con. lining. Important features of work, incl. rock excavations totaling approx. 190,000 cu. meters, approx. 41,500 cu. meters of rein.-con. lining for the underground tunnels, approx. 242,000 sq. meters casting forms, and approx. 43,000 sq. meters surf. insulation coatings. Firms wanting to bid above projects should report their interest promptly. For information on bidding NATO projects see 6/25 Construction Daily.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Crow-Steers-Shepherd (William L. Crow Constr. Co., 101 Park Ave., New York, N. Y., J. Rich Steers, Inc., 17 Battery Pl., New York, N. Y. and Shepherd Constr. Co. Inc. 1700 Briarcliff Rd., N. E., Atlanta, Ga.) CA $8,000,000. SIGNAL CORPS COMMUNICATIONS STATION, to incl. post headquarters, barracks, mess hall, infirmary, quartermaster, signal corps warehouse, motor pool, radio station and transmitting and receiving station, gymnasium, family housing, officers and NCO clubs, school bldg. and theater, ASMARA, ERITREA. U. S. Eng., Middle East Dist., Rear Echelon Office, 176 Broadway, New York 38, N. Y. CD 10/4.

Proposed Projects

WATER SUPPLY

▲ Calif., Anaheim—City, 204 E. Center St., voted $1,400,000 bonds, imprv. WW sys. George F. Oelkers, c/o owner, supt. CD 10/10/52.

▲ Ill., Springfield—City, City Hall, voted $1,000,000 bonds, imprvs. at lake Springfield source of municipal water supply, incl. new channel dam and lake filter plant addn. CD 10/1.

▲ Minn., St. Paul—City, City Hall, voted $5,500,000 bonds Nov. 2, WW imprvs. CD 9/15.

▲ N. Y., Yonkers—Westchester Co., County Office Bldg., White Plains, voted bonds Nov. 2, water filtration plant, $14,000,000.

▲ Tex., Nacogdoches—Lufkin-Lufkin-Nacogdoches Water Conservation & Imprvt. Dist., c/o Thomas E. Baker and H. J. Shands, 1st State Bank, bond election Dec. 7, constr. Lake Ponta Dam and Reservoir for domestic water supply and industrial purposes, $15,250,000;

(Continued on page 128)

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• MINERALS
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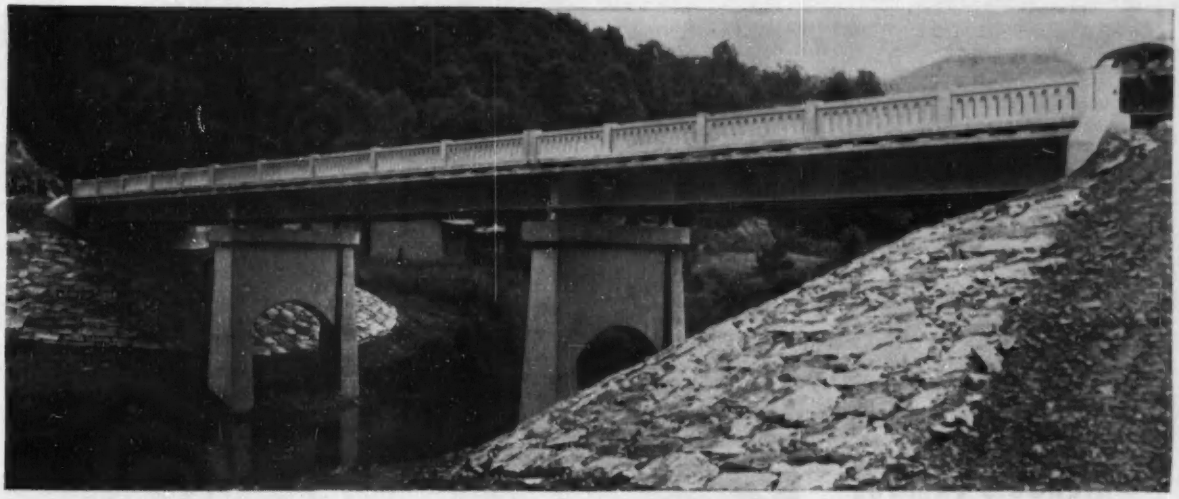

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Why was *Karnak* chosen? Because it is the membrane system of waterproofing *that holds tight against any water condition.*

Karnak is an open mesh long-fibre cotton cloth that has been heavily impregnated with highly refined asphalt *so as to leave the mesh open.* It is layered, on the job, with alternate moppings of asphalt to *provide a tough, resilient, waterproof membrane.* The non-sticking fabric unrolls easily . . . to the very end. It "works" faster and with no waste . . . saves labor costs.

The *Karnak* Membrane System is best for roof patching, skylight flashing, window and door flashing, through-wall and cornice flashing, as well as waterproofing against a hydrostatic head in dams, swimming pools, viaducts and tunnels. Send coupon for complete information. Manufactured by Lewis Asphalt Engineering Corp., 30 Church Street, New York 7, N. Y.

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(Continued from page 126)

water lines to industrial areas, $500,000; 37,500 acres clearing and grubbing site area for dam and reservoir and lake coverage area proper, $250,000. J. M. Lloyd & Assocs., Tyler, consult. engrs. CD 12/28.

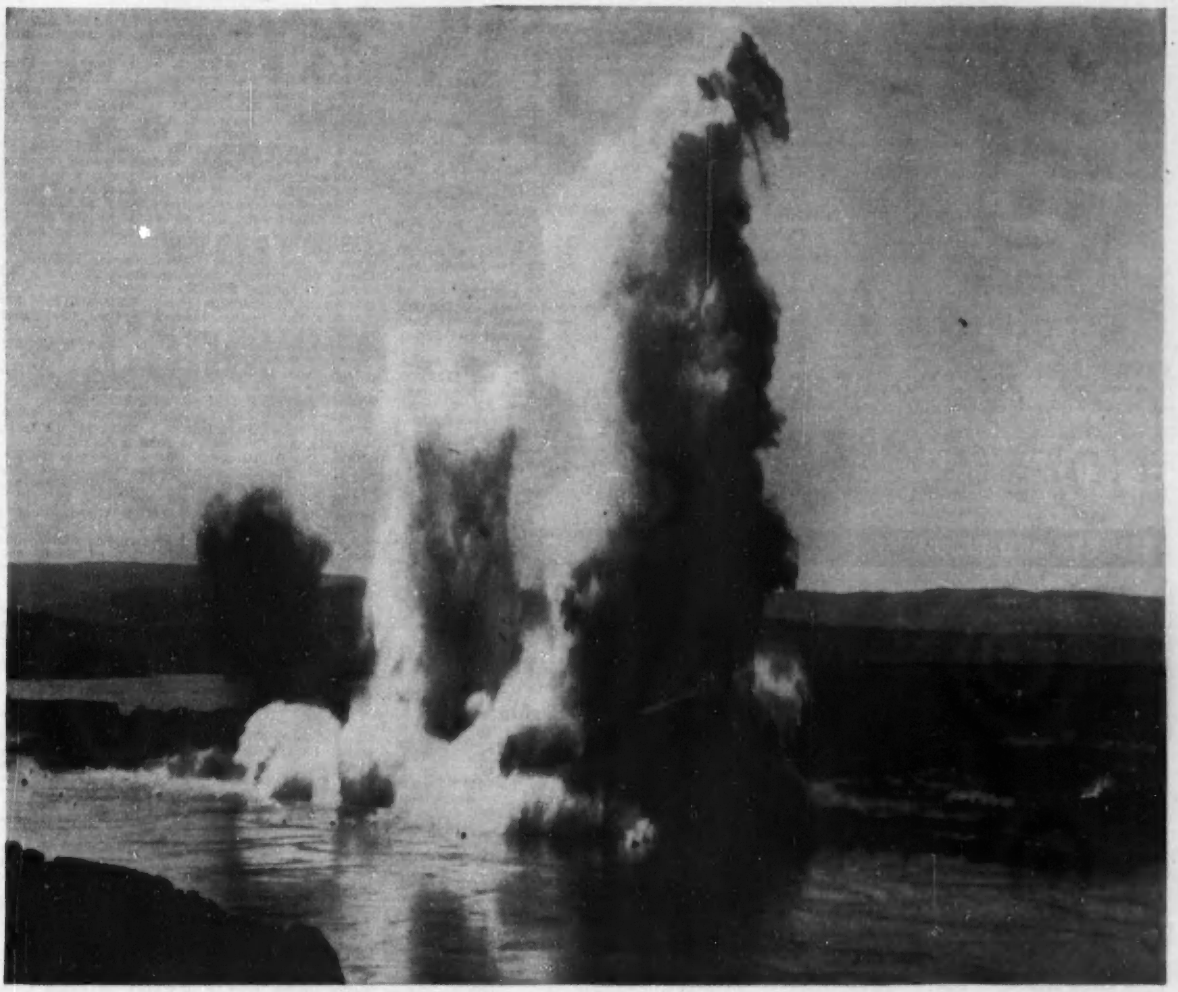
SEWERS, WASTE DISPOSAL

▲ Calif., Ontario—City, City Hall, defeated $1,300,000 bonds Nov. 2, sewerage system imprvs. CD 9/4/53.
▲ Fla., Ocala—City, voted bonds Nov. 2, sanitary sewer imprvs., $1,360,050; storm sewers, $128,000. CD 8/26.
▲ Ill., Harvey—City, City Hall, voted $300,000-$500,000 bonds, sanitary sewers. Total est. $2,000,000. CD 1/24/47.
▲ Neb., Omaha—City, City Hall, 18 and Farnam Sts., defeated $5,000,000 bonds Nov. 2, sewer constr. various points, E. W. Woodbridge, city engr. CD 9/13.
▲ O., Brook Park—Village, 5950 Eastland Rd., voted bonds Nov. 2, sewers, $1,800,000. CD 7/14.
▲ O., Cincinnati—City, City Hall, voted bonds Nov. 2, sewer imprvs. $3,700,000. CD 8/31.
▲ O., Cincinnati—Bd. Comrs. Hamilton Co., Court House, voted bonds Nov. 2, storm and sanitary sewers, $4,000,000. CD 8/31.
▲ O., Cleveland—City, City Hall, voted bonds Nov. 2, sewers, $6,000,000. CD 7/1.
▲ O., Conneaut—City voted $1,000,000 bonds Nov. 2, sewage disposal plant. CD 12/17/43.
O., East Lake—City of East Lake, 36730 Lake Shore Blvd., c/o Cleveland P. O., voted bonds Nov. 2, sanitary sewer trunk lines, $850,000. CD 6/24.
O., Evendale—Village, voted bonds Nov. 2, trunk sewers, $500,000. CD 9/1.
▲ O., Parma—Village—Parma, voted bonds Nov. 2, sewers, $1,000,000. CD 9/8.
Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, voted bonds Nov. 2, Lake City Treatment Plant addn. $915,000. CD 8/24.
▲ Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, voted bonds Nov. 2, sewers in West Seattle, $2,055,000; Seaview Ave., $165,000; Blue Ridge, Greenwood and North Beach, $310,000; addn. plant facilities at Lake City, $925,000; Magnolia Pier, 91 and Denny Way, $1,500,000; Inner Elliott Bay Interceptor, $1,500,000; North Trunk Treatment Plant, $4,000,000. W. E. Parker, city engr. CD 8/23.
▲ Ont., Willowdale—North York Twp., 5145 Yonge St., trunk sanitary sewerage sys. In northwestern area of Metropolitan Toronto, $2,298,662. Gore & Storrie, 1130 Bay St., Toronto, consult. engrs. G. H. Baker, twp. engr.

BRIDGES

▲ CALIFORNIA—State Div. Hys., Dpt. P. Wks., Public Works Bldg., Sacramento.
Butte Co.—three bridges, approaches Route 87, 4 mi. to 9.5 mi. north of Oroville, $118,000.
Humboldt Co.—structures, approaches (for interchange) 2.2 mi. Routes 1 and 20, (U. S. 101 and 299) 0.9 mi. north of Plaza Ave. to Mad River Bridge and U. S. 299 Intersection (portions) $448,000.
bridge, approaches 0.4 mi. Route 35 (SR 36) Cummings (Fex) Creek, $70,000.
Kings Co.—bridge approaches Route 125 (SR 41), South Fork of Kings River, $108,000.
Lake Co.—structures Route 49 (SR 53) Long Valley Creek Bridge and Guenoc Cattlepass, $30,000.
Los Angeles Co.—structure for Las Feliz Blvd. Interchange Routes 4, and 161, (U. S. 6-99) Golden State Freeway-Glendale Blvd. to 0.5 mi. north of Los Feliz Blvd. (portions), $1,300,000.
bridge over Los Angeles River near Victory Blvd. Routes 4 and 161 (U. S. 6-99 SR 134), Golden State Freeway—0.5 mi. north of Los Feliz Blvd. to University Ave. (portions), $2,600,000.
structures, approaches for 6-lane freeway 3.8 mi. Route 167 (SR 15), Los Angeles River (Long Beach) Freeway-Southern Ave. to North Junction Atlantic Blvd. (portions), $2,868,000.
bridge railing Route 173 (SR 26) Ninth St. Viaduct (Los Angeles River) $50,000.
Mendocino Co.—bridge, approaches, Route 48 (SR 128) Flynn Creek, $80,000.
temporary bridge and approaches 0.1 mi. Route 56 (SR 1) Little River, $55,000.
Merced Co.—bridge, approaches Route 122 (SR 140), East Side Canal, $100,000.
widening 11 bridges approx. 7 mi. Route 123, Sign Rte. 152 to Merced (portions), $220,000.
Placer Co.—structures for 4-lane freeway 2.7 mi. Routes 17 and 37, (U. S. 40), 1 mi. east of Newcastle to Elm St. in Auburn, $900,000.
San Diego Co.—structure for converting expressway to full freeway Route 12 (U. S. 80) $260,000.
San Luis Obispo Co.—bridge Route 56 (SR 1) Morro Creek, $25,000.
San Mateo Co.—structure Route 68 (U. S. 101 Bypass), Bayshore Freeway Willow Rd. Interchange, $930,000.
Santa Clara Co.—redecking 2 bridges Route 42 (SR 9) Saratoga Creek $15,000.
Shasta Co.—bridges, approaches Route 20 (SR 44) South Cow Creek, $168,000.
bridge Route 28 (U. S. 299), Stillwater Creek, $80,000.
Solano Co.—interchange structure at Manzanita St., Route 7 (U. S. 40), Carquinez Bridge to Greenfield Ave. (portions), $310,000.
▲ CALIFORNIA—Div. Highways, Public Works Bldg., Sacramento,
Richmond-San Rafael—lower deck on Richmond-San Rafael Bridge, $10,000,000. CD 9/29/52.

(Continued on page 130)



45-TON BLAST with Du Pont Special Gelatin 40% breaking basalt in powerhouse excavation area. (Photo, courtesy U. S. Corps of Engineers.)

MAKING A HOME FOR A POWERHOUSE–

Du Pont blasting "team" breaks two million cu. yds. of basalt with minimum overbreak at The Dalles Damsite project

The initial contract on the $350,000,000 Columbia Basin Development project near The Dalles, Oregon, went to the S. A. Healy Co. of White Plains, N. Y. It covered excavation for the proposed 200′ powerhouse, and foundations for the circular 36-cell coffer dam. To obtain good breakage, minimize vibration and control overbreak, this contractor used a Du Pont blasting "team" of Special Gelatin 40% and MS Delay Electric Caps.

This was a tough job. Hard basalt rock . . . extensive underwater operations . . . areas where excavations had to hew to a definite line . . . regular river traffic. And yet this Du Pont "team" enabled Healy to push the work right along on schedule. The results: over 2,000,000 cu. yds. of well-broken basalt were removed, with minimum vibration and overbreak. Here's "teamwork" that pays off!

Whatever your blasting problem, there's a Du Pont blasting "team" that will solve it. For full details on the various combinations available, contact the Du Pont Explosives man in your district. E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

DU PONT EXPLOSIVES

Blasting Supplies and Accessories

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

(Continued from page 128)

▲ **O., Cincinnati**—Bd. Comrs. Hamilton Co., Court House, voted bonds Nov. 2, imprv. bridges various locations, $1,000,000. CD 8/31.

▲ **O., Cleveland**—City, City Hall, voted bonds Nov. 2, city bridges, $4,500,000. CD 7/1.

▲ **O., Columbus**—City, City Hall, voted bonds Nov. 2, railroad grade crossing elimination. $2,000,000. CD 7/16.

▲ **Tex., Angleton**—Brazoria Co., Angleton, 570 ft. bridge, 13-40 ft. sects., with 50-ft. center span, steel, concrete to span old Brazos River Channel between Bay St. in Freeport and 4th St. in Velasco, $1,250,000; constr. concrete bridge, Stratton Ridge Rd. on Oyster Creek, Lake Jackson, $100,000; concrete bridge over Oyster Creek, between Lake Jackson and Hy. 288, Lake Jackson, $150,000.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, voted bonds Nov. 2, extending Alaskan Way viaduct, South Holgate St. $4,500,000; Broad-Mercer-Aurora underpasses; $1,500,000 second Montlake bridge, $3,000,000; 23 and E. Madison Interchange, $345,000, Connecticut St. Viaduct from Lake Way to Alaskan Way, $6,500,000; E. 45 and 22 Ave. N. E. Interchange, $50,000. W. E. Parker, city engr.

▲ **ONTARIO**—Province of Ontario, Parliament Bldgs., Toronto,

Burlington Beach—7,700 ft. bridge, two 24 ft. roadways, two 3 ft. sidewalks, Burlington Beach, $12,000,000. The Foundation of Canada Eng. Corp. Ltd., 200 Bloor St. E., Toronto, designing engrs. W. R. Souter & Assocs., 36 S. James St., Hamilton, archts. CD 8/11.

STREETS AND ROADS

▲ **CALIFORNIA**—State Div. Hys., Dpt. P. Wks. Bldg., Sacramento,

Alameda Co.—grading, paving, structures 5.6 mi. Eastshore Freeway, Beard Rd. to Jackson St. (Route 105), Route 69, (SR 17), $4,500,000.

grading, paving, structures for 8-lane freeway 1.4 mi. Eastshore Freeway, 10 St. in Oakland to Distribution Structure, Route 69 (SR 17), $7,015,000.

grading, surf. for 4-lane and 6-lane freeway approx. 9 mi., Mountain Blvd. from U.S. 50 to Sign Rte. 24; (Portions), Route 227, $300,000.

rights of way on State Highway Routes, $2,192,000.

Alamada and Contra Consta Counties—grading, surf., structure some alignment 2 mi. U.S. 50 to 0.2 mi. north of Alameda-Contra Costa Co. line, Route 107 (SR 21), $700,000.

Amador Co.—rights of way on state Highway Routes $109,200.

Butte Co.—widening base, surf., 3.3 mi. Fagan to vicinity of Biggs Rd. (portions) Route 3 (U.S. 99E), $200,000.

rights of way on State Highway Routes, $125,000.

Calaveras Co.—drainage correction at Avery, Route 24 (SR 4), $30,000.

grading, surf. (widn.) 6.5 mi. Angels Camp to Tuolumne Co. Line, Route 65 (SR 49), $100,000.

rights of way on State Highway Routes, $95,000.

Colusa Co.—grading, surf., structure for 4-lane expressway 1.5 mi. Route 7 (US 99 W) $750,000.

rights of way on State Highway Routes, $20,000.

Contra Costa Co.—grading, paving, and structures for 6- and 8-lane freeway 2.6 mi. West of Sunnybrook Dr. to west of Pleasant Hill Rd. (portions), Route 75 (SR 24), $3,800,000.

grading, paving, structures for 6- and 8-lane freeway 1.3 mi. west of Pleasant Hill Rd. to east of Pleasant Hill Rd., Route 75 (SR 24), $1,500,000.

grading, paving, structures for 4-lane freeway 2.8 mi. near north city limits of Walnut Creek to 0.3 mi. north of Monument, Route 75 (SR 21 and 24), $3,580,000.

reconstr. 4.4 mi. Danville to 0.7 mi. north of south city limits of Walnut Creek (Portions), Route 107 (SR 21), $285,000.

rights of way on State Highway Routes, $1,958,000.

Contra Costa and Alameda Counties—grading, surf., structures, some realignment 2 mi. U.S. 50 to 0.2 mi. north of Alameda-Contra Costa Co. line, Route 107 (SR 21), $700,000.

Del Norte Co.—surf. on relocation 6.2 mi. U.S. 199 to Smith River Bridge, Route 1 and 71, (US 101), $500,000.

reconstr. 5.5 mi. Winton Corners to Oregon State Line, Route 71 (U.S. 101), $255,000.

rights of way on State Highway Routes, $80,000.

Eldorado Co.—surf., lights and signals to complete 4-lane expressway 1.5 mi. Through Placerville, Route 11 (U.S. 50), $490,000.

rights of way on State Highway Routes, $100,000.

Fresno Co.—grading, paving, structures for 6-lane freeway 1.6 mi. Route 4 (U.S. 99), San Joaquin St. to West Ave. (portions), $2,250,000.

resurf. and signals O and P Sts. from Stanislaus St. to Ventura Ave. (oneway), Route 41 (SR 180) $135,000.

rights of way on State Highway Routes, $489,000.

Humboldt Co.—surf. 1 mi. 16 St. in Fortuna to North City Limits, Route 1, (U.S. 101), $30,000.

grading, surf., structure (wid'n., addnl. Eureka Slough Bridge) 4.5 mi. South City Limits of Eureka to 0.6 mile north of north city limits, Route 1 (U.S. 101) $900,000.

surf. 5 mi. North City Limits of Eureka to Gannon Slough, Route 1 (U.S. 101), $850,000.

rights of way on State Highway Routes, $520,000.

Imperial Co.—grading, paving, structures for widn. hy. Coyotes Wells Underpass Junction of Route 202, Route 12 (U.S. 80), $400,000.

grading, paving for 4-lane highway 0.5 mi. Dahlia Canal to U.S. 99, Route 12 (U.S. 80), $95,000.

grading, paving, channelizing (wid'n.) 1.3 mi. Alamo River to 0.3 mi. east of Holtville and in city of Holtville, Routes 27, 187 (U.S. 80), $165,000.

grading, paving (reconstr.-widn.) 0.5 mi. Route 187 to 0.5 mi. north, Route 201, $60,000.

rights of way on State Hy. Routes, $243,000.

Inyo Co.—rights of way on State Hy. Routes, $12,000.

Kern Co.—reconstr. 4.7 mi. Fort Tejon to 0.5 mi. north of Grapevine Station, Route 4, (U.S. 99) $400,000.

grading, surf. (convert divided hy. to expressway with limited access) 17.7 mi. Route 4 (U.S. 99) 1.4 mi. north of Grapevine to 0.6 mi. south of McKittrick Road, $200,000.

grading, paving, structures (widn. to 6-lane divided) 0.3 mi. Route 4 (U.S. 99 and 399), Union Ave. Underpass $450,000.

grading, paving, structure Routes 4 and 142, (US 99 and 466), Garces Circle Interchange, $1,500,000.

grading, surf. (wid'n., some realignment) 2 mi. Route 57 (SR 178), 2 mi. west of Democrat Hot Springs to Democrat Hut Springs, $80,000.

surf. 8.4 mi. Route 23 (U.S. 6), Kern-Los Angeles County Line to 8 mi. south of Mojave, $125,000.

grading, surf. (some wid'n. over crests; channelization at junction north of Mojave) approx. 23 mi. Routes 23, and 58, (U.S. 6 and 466), 0.5 mi. north of Mojave to Boron (Portions), $430,000.

rights of way on State Highway Routes, $1,192,000.

Kings Co.—rights of way on State Highway Routes, $20,000.

Lake Co.—grading, surf. (realignment) 2.5 mi. Route 15 (SR 20) Laurel Dell Lake to Tule Lake (Portions), $525,000.

rights of way on State Hy. Routes, $100,000.

Lassen Co.—rights of way on State Hy. Routes $30,000.

Los Angeles Co.—grading, paving, structures (widn.) 0.6 mi. Route 2, Whittier Blvd.-Painter Ave. to Washington Blvd., $350,000.

grading, paving, structures (widn.) 4.7 mi. Route 9 (SR 118), Foothill Blvd.-Tujunga Canyon Blvd. to Alta Canyada Rd., $600,000.

reconstr. 0.6 mi. Route 9 (SR 118), Canada Ave. Montana St. to Lincoln Ave. in Pasadena, $95,000.

grading, paving, structures (widn.) 3.1 mi. Route 19 (SR 71), Pearl St. in Pomona to U.S. 66 (portions), $600,000.

grading, shoulders 6.4 mi. Route 23 (U.S. 6) Palmdale to Lancaster (Portions), $30,000.

grading, surf., signals and illumination (widn.) 0.8 mi. Route 61 (SR 2), near Glendale Ave. to Town St., $250,000.

grading, surf. 0.7 mi. Route 156 (SR 27), Topanga Canyon Rd. 0.2 mi. north of U.S. 101 Alternate to 2.9 mi. north of Los Angeles City Limits, (portions), $110,000.

grading, paving, structures for 8-lane freeway 1.8 mi. Route 165 (U.S. 6 and SR 11), Harbor Freeway, 88 St. to Gage Ave., $4,600,000.

grading, paving, structures for 6-lane freeway 3.3 mi. Route 167 (SR 15), Los Angeles River (Long Beach) Freeway 0.2 mi. south of Rosecrans Ave. to Southern Ave. (portions), $1,820,000.

grading, paving, structures for 6-lane freeway 0.2 mi. Route 167 (SR 15), Los Angeles River (Long Beach) Freeway-North Junction Atlantic Blvd. to East 26 St., $1,700,000.

grading, surf., structures (some realignment and drainage imprvt.) 1.5 mi. Route 170 (SR 35) Workman Mill Rd.-Pioneer Blvd. to San Jose Creek, $82,000.

grading, paving, structures (wid'n. to 4 lanes divided) 1.8 mi. Route 178, (U.S. 91 and SR 18), Carson St.-San Gabriel River to Orange County Line, $300,000.

rights of way on State Highway Routes, $36,992,000.

Los Angeles and Orange Counties—grading, paving structures (Incl. Buena Park realignment) 2 mi. Route 174 (U.S. 101, SR 14), Santa Ana Freeway-Coyote Creek to Orangethorpe Ave., $2,100,000.

Madera Co.—irrigation and relocation 3.6 mi. Route 4 (US 99), 0.5 mi. south to 1.5 mi. north of Madera (portions), $30,000.

rights of way on State Hy. Routes, $521,000.

Marin Co.—grading, paving, structure for 6-lane freeway incl. Alto interchange 2.5 mi. Route 1 (U.S. 101), Waldo to 0.3 mi. north of Alto intersection (portions), $1,730,000.

rights of way on State Hy. Routes, $715,000.

Mendocino Co.—reconstr. 6.4 mi. Route 48 (SR 128) 8.75 mi. to 15.25 mi. easterly on Boonville (portions), $130,000.

grading, surf., structures (replace bridge, imprv. approaches) 0.9 mi. Route 56 (SR 1), 0.7 mi. south to 0.2 mi. north of Greenwood Creek, $475,000.

rights of way on State Hy. Routes, $255,000.

Merced Co.—rights of way on State Highway Routes, $80,000.

Modoc Co.—rights of way on State Highway Routes, $20,000.

Mono Co.—grading, surf. (widn.) approx. 10 mi. Route 40, Pole Line Rd.-U.S. 395 to Nevada State Line (portions), $200,000.

Monterey Co.—grading, surf., structure (4-lane expressway and addnl. bridge) 2.8 mi. Route 2 (U.S. 101) Canal St. (King City) to 1.8 mi. north of Salinas River, $1,366,000.

grading, surf., structure for 4-lane expressway 1.2 mi. Route 117 (SR 1), Camino El Estero to Del Monte Junction, $410,000.

rights of way on State Highway Routes, $340,000.

Napa Co.—grading, surf. (wid'n., some realignment) 1.2 mi. Route 6 (SR 37) East City Limits of Napa to 6.5 mi. east (portions) $75 000.

rights of way on State Highway Routes, $210,000.

Nevada Co.—reconstr. 5.5 mi. Route 18 (U. S. 40), East Truckee to Boca (Portions), $125,000.

rights of way on State Highway Routes, $210,000.

Orange Co.—grading, surf., structures (wid'n) 1.6 mi. Route 62 (SR 39) Imperial Hy. to Whittier Blvd. west of La Habra, $200,000.

interchange Route 174 (U. S. 101), Santa Ana Freeway-La Palma Ave.-Brookhuesr Sr., $1,070,000.

grading, paving, structures (realignment through Anaheim) 1.7 mi. Route 174 (U. S. 101) 0.2 mi. west of Euclid Ave. in Anaheim to 0.2 mi. east of South St. and Bill Rd. Interchange, $2,332,000.

rights of way on State Highway Routes, $2,430,000.

Orange and Los Angeles Counties—grading, paving, structures (inc. Buena Park realignment) 2 mi. Route 174 (U. S. 101 and SR 14) Santa Ana Freeway-Coyote Creek to Orangethorpe Ave., $2,100,000.

Placer Co.—reconstr. 2.1 mi. Route 38 (SR 89) 2.8 mi. north of Tahoe City to Truckee River Bridge, $70,000.

rights of way on State Highway Routes, $200,000.

Plumas Co.—drainage correction Route 21 (U. S. 40 Alt.) in Portola, $50,000.

grading, surf., structure 1 mi. Route 83 (SR 89) middle Fork Feather River Bridge and line change $280,000.

drainage correction and surf. 0.5 mi. Route 83 (SR 89) in Greenville, $30,000.

grading, surf. (realignment) 0.7 mi. Route 83 (SR 89) Westwood Rd. to Almanor Dam, $70,000.

rights of way on State Highway Routes, $24,000.

Riverside Co.—grading, paving, structures for 4-lane freeway 3.5 mi. Route 260 (U. S. 60-70-99), 22 St. in Banning to 0.7 mi. east of Banning, $1,350,000.

grading, paving, structures (wid'n. to 4-lanes divided) 2.6 mi. Route 26 (U. S. 60-70-99), West City Limits of Indio to 0.5 mi. north of Indio Overhead, $820,000.

grading, paving, structures for 4-lane freeway 2.2 mi. Route 43 (U. S. 91-395 and SR 18), in Riverside, 0.4 mi. south of 14 St. to Russell St., $2,100,000.

grading, surf., structure (wid'n.) 1.3 mi. Route 187 (SR 111) in Palm Springs Palo Verde Ave. to Ramon Rd. $180,000.

rights of way on State Highway Routes, $1,290,000.

Sacramento Co.—grading, surf., structures for 4-lane freeway 6.8 mi. Route 4 (U. S. 50-99), San Joaquin Co. line to 1.5 mi. south of Cosumnes River, $3,600,000.

surf. 4.9 mi. Route 11 (U.S. 50), Mills to 1 mi. west of Nimubs, $75,000.

rights of way on State Highway Routes, $1,205,000.

San Benito Co.—rights of way on State Highway Routes, $80,000.

San Bernardino Co.—grading, paving, structures for 4-lane freeway (incl. Santa Ana River Bridge) 1.3 mi. Routes 26, 43 (U.S. 70-99), Warm Creek to South "E" St. and Rte. 26 to Santa Ana River $1,785,000.

grading, surf. (wid'n. existing hy.) 2.1 mi. Route 31 (U.S. 66-91-395) near Verdemont to 0.6 mi. north of Devore, $85,000.

grading, paving, structures for north-south freeway 0.4 mi. Route 31, 190 (U.S. 66-91-395 and SR 30) Highland Ave. separation and overhead, $1,100,000.

grading, surf. (wid'n.) 3.3 mi. Route 190 (SR 30) Riverside Ave. to U.S. 66-91-395 in San Bernardino, $325,000.

rights of way on State Highway Routes, $3,190,000.

San Diego Co.—cooperative drainage Route 2 (U.S. 101), Laurel St. to San Diego River, $250,000.

grading, paving Route 2 (U.S. 101) at Cudahy Creek $130,000.

grading, paving, structures for converting expressway to full freeway 4.5 mi. Route 12 (U.S. 80) Fairmount Ave. to El Cajon Blvd. (portions) $400,000.

grading, paving, structures (separation of intersections) Route 77 (U.S. 395) Fulton St. to Sero Dr. (portions) $823,000.

grading, paving (wid'n. to 4 lanes divided) 0.5 mi. Route 195 (SR 76), in Oceanside, Loma Alta Canyon Dr. to Mesa Dr., $70,000.

grading, paving (wid'n. signals and channelization) 1.2 mi. Route 198 (SR 67) Main St. in El Cajon to 0.3 mi. north of Broadway, $290,000.

grading, paving, structures for 4-lane freeway 2.5 mi. Route 200 (SR 94) College Ave. to Campo Rd., $3,480,000.

rights of way on State Highway Routes, $3,026,800.

San Francisco Co.—grading, surf. (wid'n. to 6-lane expressway) 0.9 mi. Route 56 (SR 1) Fulton St. to Lake St., $200,000.

grading, paving, structures 1.2 mi. Route 224, Embarcadero Freeway-San Francisco-Oakland Bay Bridge at Fremont St. to Broadway (portions), $2,600,000.

rights of way on State Highway Routes, $7,150,000.

San Joaquin Co.—grading, surf. structures for 4-lane freeway 4.8 mi. Route 4 (U.S. 99) Lathrop Rd. to Turner Station, $1,400,000.

grading, surf. (realignment) 4.4 mi. Route 24 (SR 12) 1.2 mi. east of Clements to Calaveras Co. line, $400,000.

rights of way on State Highway Routes, $750,000.

San Luis Obispo Co.—rights of way on State Highway Routes, $835,000.

San Mateo and Santa Clara Counties—grading, surf. (wid'n.) 0.5 mi. Route 2 (U. S. 101) El Camino Real, 0.1 mi. north of University Ave to 0.1 mi. north of Santa Clara-San Mateo Co. line, $240,000.

San Mateo Co.—grading, surf. (wid'n.) 0.9 mi. Route 2 U. S. 101) El Camino Real, Rosedale Ave. to Victoria Ave., $300,000.

grading, surf. (wid'n., some realignment) 11.1 mi. Route 56 (SR 1), 0.3 mi. north of Finney Creek to Lake Lucerne (portions), $150,000.

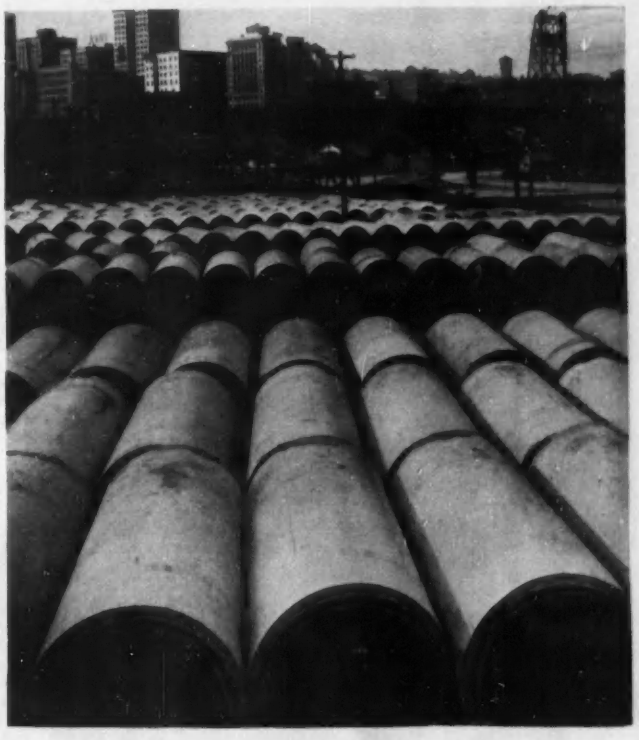
grading, structures for 6-lane relocation across Candlestick Cove 3.5 mi. Route 68 (U. S. 101 Bypass) Bayshort Freeway 0.3 mi. north of Butler Rd. to San Francisco Co. line (portions), $2,000,000.

(Continued on page 132)

TACOMA

PREFERS

Concrete Pressure Pipe



How does concrete pressure pipe stand up under extraordinary stress? Tacoma water authorities can tell you. Concrete pressure pipe installations in this northwest metropolis have been subjected to unusual strains from vibration, shock, heavy earth loads and serious earth tremors. No damage to the pipe resulted—a tribute to the strength and ruggedness of concrete pressure pipe.

Since 1928, approximately 160,000 feet of concrete pressure pipe have been laid in Tacoma and its surrounding area. Performance reports show that a minimum of maintenance has been necessary; that there has been no trouble due to electrolytic action, corrosion, or tuberculation.

When your community requires water transmission systems or distribution mains which must withstand unusually high stresses, install concrete pressure pipe. It has a proven record of performance under adverse conditions.

Member companies are equipped to manufacture and furnish concrete pressure pipe in accordance with established national specifications and standards.

Concrete PRESSURE Pipe

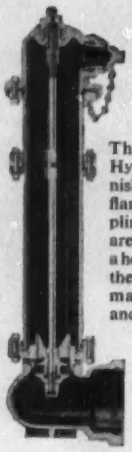
WATER FOR GENERATIONS TO COME

AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION

228 North LaSalle Street
Chicago 1, Illinois

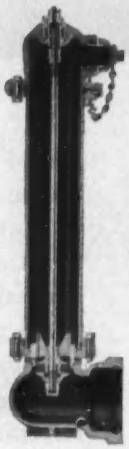
Solidly Built

The R. D. Wood Swivel Joint Hydrant is designed to provide maximum reliability at lowest cost consistent with assured delivery of water at full pressure. It is solidly built and of the finest materials. Every point where rust and corrosion might interfere with operation is protected by at least one bronze surface.



The R. D. Wood Hydrant can be furnished with breakable flange and stem coupling at extra cost. Both are built to break with a heavy blow. This saves the hydrant itself and makes repair quick and easy.

The R. D. Wood Swivel Joint Hydrant: All internal parts, including drain valve seat, removable through barrel • all-bronze stuffing box • completely revolving head • compression-type valve, cone shaped to prevent water hammer • automatic drain valve • bronze main valve seat screws directly into elbow with straight, not tapered threads • mechanical-joint pipe connections if specified.

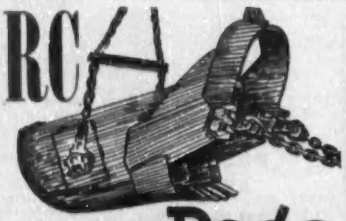


R. D. Wood Swivel Joint Hydrants

Public Ledger Building, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

RCA



GENERAL PURPOSE Page AUTOMATIC DRAGLINE BUCKETS

CLEARING POST OFFICE • CHICAGO 38, ILL.

Diamond Core

Drilling

CORE BORINGS
for Foundations, Dams, Bridges and all Heavy Structures
GROUT HOLES

Tinney Drilling Co.

Grafton, W. Va.

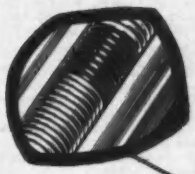
(Continued from page 130)

Drainage Route 68 (U.S. 101 Bypass) Bayshore Highway in Burlingame and Millbrae (portions) $120,000.
rights of way on State Highway Routes, $1,775,000.
Santa Barbara Co.—grading, paving, structures for 4 lane expressway 3.2 mi. Route 2 (U.S. 101) Los Olivos St. (Santa Barbara) to El Sueno Road, $2,200,000.
grading, surf. for 4-lane expressway 3.4 mi. Route 2 (U. S. 101) 0.5 mi. west of Arroyo Hondo to Gaviota, $850,000.
grading, surf. for 4-lane expressway 11.9 mi. Route 2 (U.S. 101) 1 mi. north of Los Alamos to 4 mi. south of Santa Maria, $1,855,000.
grading, surf. (straighten and wid'n.) 0.4 mi. Route 57 (SR 166) 1.7 mi. east of Clear Creek to 2.3 mi. west of second crossing of Cuyama River $80,000.
rights of way on State Highway Routes $1,470,000.
Santa Clara Co.—grading, surf. (wid'n. 4-lanes) 12.3 mi. Route 2 (U.S. 101), Llagas Creek to Ford Rd., $1,000,000.
grading, paving, structures for 4-lane freeway 1.6 mi. Route 68 (U.S. 101 Bypass) Bayshore Freeway-Santa Clara St. in San Jose to Rosa St., $1,600,000.
grading, surf. (wid'n.) 0.8 mi. Route 114 (SR 9) Mathilda Ave.-El Camino Real to Beemer Ave. $100,000.
Santa Clara and San Mateo Counties—grading, surf. (wid'n.) 0.5 im. Route 2 (U.S. 101) El Camino Real, 0.1 mi. north of University Ave. to 0.1 mi. north of Santa Clara-San Mateo County line, $240,000.
Santa Clara Co.—grading, surf. (realignment) 2.3 mi. Route 119 (SR 25) San Benito Co. line to U.S. 101, $420,000.
rights of way on State Highway Routes, $1,355,000.
Santa Cruz Co.—grading, paving, structures for 4-lane expressway 1.3 mi. Route 56 (SR 1) Los Gatos Hy. (Route 50) to Mission St. $1,270,000.
rights of way on State Highway Routes, $325,000.
Shasta Co.—grading, surf., structures for 4-lane expressway 2.5 mi. Route 3 (U.S. 99) Crespo's to Vollmer's, $1,200,000.
grading, surf. (realignment) 3.5 mi. Route 28 (U.S. 299) Montgomery Creek to 0.2 mi. east of Hillcrest, $685,000.
reconstr. Route 83 (SR 89) Doyle Cattlepass, $30,000.
rights of way on State Highway Routes, $305,000.
Sierra Co.—rights of way on State Highway Routes, $3,000.
Siskiyou Co.—grading, surf. (some wid'n. and realignment) 1.5 mi. Route 3 (U. S. 99) Fisher's to Pine St. in Dunsmuir, $60,000.
rights of way on State Highway Routes, $335,000.
Solano Co.—grading, surf. frontage roads 8 mi. route 7 (U. S. 40) Greenfield Ave. to Sign Rte. 48, $120,000.
grading surf. (wid'n.) 5 mi. Route 53 (SR 12) Suisun to 5 mi. easterly, $250,000.
rights of way on State Highway Routes, $1,285,000.
Sonoma Co.—grading, surf. (wid'n.) approx. 10 mi. Route 56 (SR 1) Jenners to Mendocino Co. line (portions), $200,000.
reconstr. 2.7 mi. Route 104, Gravenstein Hy.-Sebastopol to U. S. 101 (Portions) $140,000.
rights of way on State Highway Routes, $415,000.
Stanislaus Co.—grading, surf. (wid'n.) 0.7 mi. Route 13 in Riverbank, $50,000.
rights of way on State Highway Routes, $160,000.
Sutter Co.—surf. 3 mi. Route 15 (SR 20) Meridian to Sutter Bypass (portions) $60,000.
Tehama Co.—grading, surf. 12 mi. Route 3 (U. S. 99E), Butte Co. Line to Los Molinos, $850,000.
rights of way on State Highway Routes, $12,000.
Trinity Co.—grading, surf. (realignment) 3.5 mi. Route 20 (U. S. 299) Vitzhum's to Tom Lang Gulch, $700,000.
surf. approx. 11 mi. Route 20 (U. S. 299) Humboldt Co. line to Prairie Creel (portions) $75,000.
rights of way on State Highway Routes $10,000.
Tulare Co.—grading, paving, structures for 4-lane freeway 6 mi. Route 4 (U. S. 99) 0.5 mi. north of Earlimart to 0.5 mi. north of Pixley, $2,000,000.
grading, paving to complete Porterville relocation 7.6 mi. Route 129 (SR 65) 1.5 mi. north of Deer Creek to Linda Vista Ave., $900,000.
rights of way on State Hy. Routes, $500,000.
Tuolumne Co.—grading, surf. (realignment) 2 mi. Route 40 (SR 49-120) shawmut Grade, $375,000.
grading, surf. (portions) wid'n. 7.6 mi. Route 65 (SR 49) Columbia Wye to Calaveras Co. line, $100,000.
rights of way on State Highway Routes, $25,000.
Ventura Co.—reconstr. 2.4 mi. Route 79 (SR 126) near Mound School to 2.4 mi. easterly $75,000.
grading, paving, structures for 4-lane freeway 3.9 mi. Route 138 (U. S. 399) U. S. 101 to 9.3 mi; south of Mill School, $2,000,000.
rights of way on State Highway Routes, $1,435,000.
Yolo Co.—grading, surf., structures (realignment incl. new bridge) 1.5 mi. Route 7 (U. S. 99W) 0.5 mi. north of Cache Creek to 0.5 mi. north of Yolo, $460,000.
rights of way on State Highway Routes, $21,000.
Yuba Co.—grading (for 4-lane expressway) 4 mi. Route 3 (U. S. 99E), Olivehurst to Marysville, $700,000.
grading, surf., structures 1.5 mi. Route 87 (U. S. 40 Alt.) Simmerly Slough Bridge and line change, $725,000.

▲-Calif., Anaheim—City, City Hall, voted $1,200,000 bonds, street imprvs. CD 11/15.
Fla., Ocala—City, voted bonds, Nov. 2, street imprvs. $771,950. CD 8/26.

▲ Kan., Kansas City—City, City Hall, 805 N. 6 St., voted $4,900,000 bonds Nov. 2, streets, trafficways, bridges, viaducts, roads, acquiring right of way, CD 10/26.

(Continued on page 134)



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Architects, DeLeuw, Cather & Company, Chicago, Ill.
PORT OF NEW YORK AUTHORITY BUS TERMINAL, New York, N. Y.
Architects, Port of New York Authority Engineers
UNION PACIFIC RAILROAD COMPANY, Seattle, Wash.
WICHITA MUNICIPAL AIRPORT, Wichita, Kan.
Architects, Thomas-Harris-Colvin Associates
HUDSON & MANHATTAN RAILROAD
PENNSYLVANIA RAILROAD
GREYHOUND BUS TERMINAL, Kansas City, Mo.
*NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 84
*NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 57

PUBLIC BUILDINGS

PENTAGON BUILDING, Arlington, Virginia
METROPOLITAN MUSEUM OF ART, New York, N. Y.
Architects, Vorhees, Walker, Foley & Smith
AMERICAN NATIONAL BANK, Austin, Texas
Architects, Kuehne, Brooks and Barr

HOTELS

STATLER
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INDUSTRIAL

FORD MOTOR COMPANY, Livonia, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.
*BUICK MOTOR DIVISION, Building No. 36, Flint, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.
*BUICK MOTOR DIVISION, Building No. 44, Flint, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.
*GENERAL MOTORS SAGINAW GEAR DIVISION, Saginaw, Mich.
Architects, Argonaut Realty Co.
*ROCHESTER PRODUCTS DIVISION GMC, Rochester, New York
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(Continued from page 132)

▲ **Ky., Louisville**—City, City Hall, voted $4,000,000-$5,000,000 bonds Nov. 2, street imprvs. W. W. Sanders, city engr. CD 8/23.

▲ **O., Cincinnati**—City, City Hall, voted bonds Nov. 2, various street imprvs. $2,200,000. CD 8/31.

▲ **O., Cincinnati**—Bd. Comrs. Hamilton Co., Court House, voted bonds Nov. 2, various roads, imprvs. $3,000,000. CD 9/7.

▲ **O., Cleveland**—City, City Hall, voted bonds Nov. 2, grading, paving, resurf., city streets, $3,000,000; opening, extending, widening and relocating streets, $2,000,000. CD 7/1.

O., Parma—City, 6611 Ridge Rd., Zone 29, voted bonds Nov. 2, streets, $500,000. CD 7/12.

▲ **Okla., Tulsa**—Tulsa Co., Court House, voted bonds Nov. 2, highway rights of way and bridges, $2,435,000, George Straughn, c/o owner, engr. CD 9/27.

▲ **VIRGINIA**—Richmond-Petersburg Turnpike Authority, Southern States Bldg., 7 and Main Sts., Richmond, Zone 19,

Henrico, Chesterfield and Dinwiddie Counties—35 mi. toll road from north of Richmond to southeast of Petersburg. $57,000,000. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, N. Y., consult. engrs. Coverdale & Colpitts, 120 Wall St., New York, N. Y., will make traffic and revenue estimate studies. CD 8/4/53.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, voted bonds, 25 Ave N.E., E. 45 St. to Bothell Way, $810,000; wid'n. W. Holden St. 28 Ave. S. W. to Delridge Way, $25,000; realign E. John and E. Thomas $50,000; wid'n. Roosevelt Way. E. 65 St. to 125 St. $200,000; wid'n. 35 Ave. N.E. E. 85 St. to 85 to 125 St., $250,000; constr. 8 Ave. N. W., W. 85 St. to Bothell Way $250,000; wid'n. 5 Ave. N.E., E. 85 to 125 St., $250,000 constr. 8 Ave. N. W., W. 85 St. to Holman Rd., $75,000; wid'n. Alaskan Way, Holgate to Spokane Sts., $150,000; wid'n. Rainier Ave., Dearborn to Atlantic Sts., $50,000; wid'n. 11 Ave. N.E. canal to Bothell Way, $500,000; wid'n. 23 Ave. N.E. Madison to Turner Way, $100,000; wid'n. Sand Point Way and E. 12 St., E. 75 St. to Roosevelt Way $600,000; wid'n. Roosevelt Way E. 125 St. to Aurora Ave., $200,000; wid'n. 1 Ave. S. and Myers Way $125,000; wid'n. Graham St. Empire Way to Swift Ave., $187,000; wid'n. N. 40 St., Stone Way-Wallingford, $40,000. W. E. Parker, city engr. CD 8/27.

EARTHWORK, WATERWAYS

▲ **Tex., Lockhart**—Plum Creek Watershed Assn., c/o Walter Cardwell, pres., Luling, one main water retention dam, $3,000,000; some drainage embankments, revetments, etc., $500,000 in 240,000-acre area between Luling and Kyle; series of smaller ponds and lakes formed along route of watershed between Luling and Kyle, $2,000,000.

▲ **Washington**—Grant Co. Public Utility District, Ephrata, hydro-electric dam on Columbia River, Priest Rapids, $325,000,000. Harza Eng. Co., 400 N. Madison Ave., Chicago, Ill. consult. engr. CD 6/12/52.

▲ **British Columbia**—British Columbia Electric Co. Ltd., 425 Carrall St., Vancouver, hydro-electric project consisting of 7-mi. tunnel, 9 ft. wide, 18 ft. high, 14 mi. transmission line will feed into existing Bridge River powerline an addnl. 200,000 h.p. transmitted at 230,000 volts, Cheakamus River, 14 mi. northwest of Squamish, $25,800,000.

AIRPORTS

† **Calif., Alameda** — OVERHAUL BUILDING — Twelfth Naval Dist., San Bruno, overhaul bldg., Alameda Naval Air Station, $600,000. Kaiser Engineers, 1924 Broadway, Oakland, consult engrs.

▲ **O., Cleveland**—AIRPORT TERMINAL—City, Dpt. P. Properties, City Hall, defeated bonds Nov. 2, airport terminal, $3,600,000. CD 7/1.

Pa., Pittsburgh—AIRPORT—Comrs. Allegheny Bd. Co., County Office, constr. and pave taxiways, approx. 50x5,700 ft.; taxiway lighting, land acquisition for approach light lane (Bettis Field), County Airport. West Mifflin. $500,000.

▲† **Va., Langley Field**—HANGAR—U. S. Eng., foot of Front St., Norfolk, plans by Lublin-McCaughy & Assoc., 1001 Connecticut Ave. N. W., Washington, D. C., maintenance hangar. Approx. $1,500,000. CD 11/16/51.

LATIN AMERICA

▲ **Cuba, Havana**—REFINERY—C. J. Simpson Drilling Co., Life of America Bldg., Dallas, Tex., plans erecting refinery near here, $2,750,000.

PUBLIC BUILDINGS

Calif., Claremont—SCHOOL—Claremont Unified School Dist., Claremont, plans by Neptune & Thomas, 1560 W. Colorado St., Pasadena, Junior High School $500,000. CD 1/26.

▲ **Calif., Irvington**—SCHOOLS—Irvington Elementary School Dist., 291 Broadway, 3 elementary schools, $1,400,000.

▲ **Calif., Los Angeles**—OSTEOPATHIC UNIT—Los Angeles Co., Hall of Records, voted $9,220,000 bonds Nov. 2, osteopathic unit at General Hospital. CD 8/17.

▲ **Calif., Los Angeles**—SECURITY UNIT—Los Angeles Co., Hall of Records, voted $1,563,000 bonds, Nov. 2, maximum security unit at Wayside Honor Rancho. CD 8/17.

▲ **Calif., Los Angeles**—COURT, etc.—Los Angeles Co., Hall of Records, defeated $4,150,000 bonds Nov. 2, court and administration bldg. CD 8/17.

▲ **Calif., Monrovia-Duarte**—SCHOOLS—Monrovia-Duarte High School District, voted $2,000,000 bonds school facilities. CD 7/6.

▲ **Calif., San Francisco**—EXHIBIT, CONVENTION HALL—City and San Francisco Co., City Hall, voted $3,275,000 bonds, underground exhibit and convention hall in the civic center. CD 8/4.

▲ **Calif., San Francisco**—HOME FOR AGED—City and San Francisco Co., City Hall, voted $7,070,000 bonds for modernizing City's Laguna Honda Home for the Aged. CD 8/4.

▲ **Calif., San Francisco**—HOSPITAL—City and San Francisco Co., City Hall, voted $7,960,000 bonds expansion and modernization of San Francisco Hospital. CD 8/4.

▲ **Calif., San Francisco**—SCHOOL—City and San Francisco Co., Dpt. P. Wks., City Hall, plans by Aleck L. Wilson, 310 Montgomery St., Junior High School, Silver and Thomas Aves. $1,250,531. CD 11/17/48.

† **Calif., San Francisco**—SHOP—Twelfth Naval Dist., San Bruno, pipefitters' shop, San Francisco Naval Shipyard, NOY 83954, $650,000.

▲ **Calif., Santa Ana**—ADMINISTRATION—Orange Co., Court House, defeated $11,000,000 bonds Nov. 2, county administration bldg. CD 9/7.

▲ **Calif., Santa Ana**—NURSING SCHOOL—Orange Co., Court House, defeated $6,000,000 bonds nursing school and psychiatric hospital. CD 9/7.

▲ **Calif., Santa Monica**—CIVIC AUDITORIUM—City, City Hall, voted $2,850,000 bonds, Nov. 2, civic auditorium, Kliegman & Leizer, 8588 Melrose Ave., Los Angeles, and Barienbrock & Murray, 600 Wilshire Blvd., Santa Monica, archts. CD 9/15.

▲ **Calif., Tracy**—SCHOOLS—Tracy Union High School District, Tracy, voted $1,038,000 bonds school addns. CD 8/18.

Calif., Walnut Creek—SCHOOL—Walnut Creek School Dist., Walnut Creek, $800,000 bond election Jan. 20, schools. CD 8/4.

Conn., New Haven—GARAGE, etc.—City, Richard C. Lee, mayor, City Hall, plans by Robert T. Coolidge, 200 Blake Rd., Hamden, city garage, maintenance and supply house, Middletown Ave. and Fawn St. $750,000. Henry A. Pfisterer, 111 Whitney Ave., consult, engr. CD 8/3.

▲ **Ia., Des Moines**—COUNTY HOME—Polk Co., Court House, defeated $1,428,000 bonds Nov. 2, county home. Woodburn & O'Neil, 215 Jewett Bldg., archts. CD 9/16.

▲ **Mass., Hull**—SCHOOL—Town, 81 Central St., plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, high School Pemberton Sect., Wind Mills Point, $1,900,000.

Mich., Detroit—HEATING PLANT—City, Detroit Street Railway Dpt., 11200 Shoemaker St., plans by H. E. Beyster & Assoc., Inc., 2000 Industrial Bldg., central heating plant Highland Park Garage and Shop, $855,000.

▲ **Mich., Mount Pleasant**—SCHOOL—Bd. Educ., $1,500,000 bond election Nov. 23, high school. CD 8/26.

Minn., Hibbing—SCHOOL—Bd. Educ., E. G. Hoskins, clk., plans by Haarstick, Lundgren & Assoc., W. 1391 First National Bank Bldg., St. Paul, grade school $800,000. CD 6/21.

▲ **Minn., Rochester**—SCHOOL—Bd. Educ., K. Hagaman, clk., plans by Ellerbee & Co., E. 505 First National Bank Bldg., St. Paul, high school $3,000,000. CD 8/18.

Mo., Kansas City—CIVIC CENTER UNIT—City, c/o Reed McKinley, dir. P. Wks. Dpt., City Hall, plans by Kivett & Myers and Angus McCallum, assoc. archt., 1016 Baltimore St., Kansas City, Mo., north area civic center unit, fire station, police station, ambulance garage, community center, public works bldg., Antioch Rd. and 39 Terrace North $700,000. CD 8/10.

Mo., Overland (St. Louis 14 P. O.)—SCHOOL—Ritenour Consolidated School Dist., Bd. Educ., Arthur A. Hoech, supt. Schools, 9120 Bristol Ave., Zone 14, voted $650,000 bonds Oct. 19, Kratz School addn., 4301 Edmundson Rd.; Overland School addn., 2318 Woodson Rd., other imprvs. CD 10/5.

Mo., Sugar Creek—SCHOOL—Bd. Educ., voted $620,000 bonds, elementary school. CD 9/21.

▲ **Mont., Miles City**—SCHOOLS—Custer County High School Dist., Miles City, voted bonds Nov. 2, elementary school, $346,000; defeated bonds high school, $1,300,000. CD 9/28.

Neb., Lincoln—ARMORY—Neb. National Guard Capitol, Lincoln, plans by Schaumberg & Freeman, 614 Federal Security Bldg., armory, 19 and Court Sts. $500,000. CD 4/7.

Neb., Omaha—HIGH SCHOOL—Bd. Educ., 3902 Davenport St., plans by John Latenser & Sons, 1307 Farnam St., Monroe Junior High School. $750,000. CD 10/1.

▲ **Neb., Lincoln**—SCHOOLS—Bd. Educ., 720 S. 22 St., $10,500,000 bond election Feb. 8, school constr. and imprvs. CD 5/7/51.

▲ **N. J., Trenton**—MEDICAL DENTAL COLLEGE—State Institutions Dept., State House, defeated $25,000,000 bonds Nov. 2, medical-dental college. CD 6/17.

▲ **N. Y., Scarsdale**—HIGH SCHOOL—Bd. Educ., Brewster Rd., plans by Reginald Marsh, Starrett & Van Vleck Assocs., 101 Park Ave., New York, Zone 17, Junior High School. $3,000,000.

▲ **N. Y., Springfield**—SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, plans by M. Radoslovich, c/o owner, 4 story public school, Ridgedale and Lucas Sts. $2,000,000.

O., Alliance—SCHOOL—Bd. Educ., Lexington School Dist., R. 4, voted $735,000 bonds Nov. 2, Central school. CD 7/21.

▲ O., Athens—SCHOOLS—Bd. Educ., voted $1,100,000 bonds Nov. 2, grade school and high school addns., CD 7/23.

O., Bedford—SCHOOLS—Bd. Educ., 91 Tarbell Rd., voted bonds Nov. 2, elementary school bldgs., imprvs. and other site imprvs. $600,000. CD 7/2.

▲ O., Canton—SCHOOL—Bd. Educ., Plain School Dist., voted $1,670,000 bonds Nov. 2, high school and addns. to 2 grade schools. CD 7/20.

O., Carlisle—SCHOOL—Bd. Educ., voted $670,000 bonds Nov. 2, school at rear of present school connected to old structure by breezeway. CD 7/22.

O., Chagrin Falls—SCHOOL—Orange School Bd., Chagrin Blvd. voted bonds Nov. 2, new school bldgs. and addns., Orange, $840,000. Outcalt, Guenther & Assocs., 13124 Shaker Square, Cleveland, Zone 20, archts. CD 9/23/52.

▲ O., Cincinnati—COUNTY HOME—Bd. Comrs., Hamilton Co., Court House, voted bonds Nov. 2, Hamilton County Home addns. $3,000,000. CD 8/31.

▲ O., Cincinnati—SCHOOLS—Bd. Educ., 600 E. McMillan St., voted bonds Nov. 2, school bldgs. addns., $15,000,000. CD 8/3.

▲ O., Cincinnati—UNIVERSITY—City, City Hall, voted bonds Nov. 2, imprvs. at University of Cincinnati, $4,600,000. CD 8/31.

▲ O., Cleveland—BUILDINGS—City, Dpt. P. Health, & Welfare, City Hall, voted bonds Nov. 2 buildings at Hudson Boys' Farm, Blossom Hill, etc. $2,400,000. CD 7/1.

▲ O., Cleveland—COUNTY OFFICE—Comrs., Cuyahoga Co., 135 Court House, Zone 14, defeated bonds Nov. 2, county office bldg. $4,100,000. CD 7/12.

▲ O., Cleveland—HOSPITAL and HEALTH CENTERS—City, City Hall, voted bonds Nov. 2, hospital and health centers, $2,850,000. CD 7/1.

▲ O., Cleveland—POLICE and FIRE STATIONS—City, City Hall, voted bonds Nov. 2, police and fire stations, $1,500,000. CD 7/1.

▲ O., Dayton—COURT HOUSE—Montgomery Co., Comr. Court House, defeated bonds Nov. 2, court house, $5,500,000. CD 6/22.

O., Fostoria—SCHOOL—Bd. Educ., H. L. Ford, supt., voted $975,000 bonds Nov. 2, grade school, addns., and alterations to existing bldgs. CD 7/26.

▲ O., Garfield Heights—SCHOOLS—Bd. Educ., Garfield Heights, defeated bonds Nov. 2, schools, $1,500,000. CD 10/5.

▲ O., Kettering—SCHOOL—Bd. Educ., Kettering Village School Dist., voted $1,500,000 bonds Nov. 2, first unit

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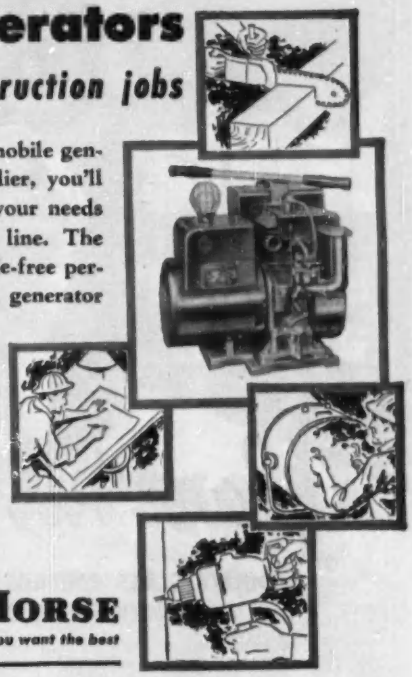

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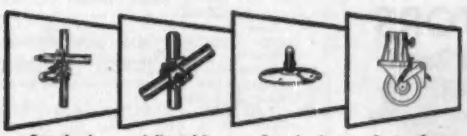

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of high school to replace Fairmont High School along Far Hills Ave. between Lincoln Park Blvd. and Rockhill Ave. Rial T. Parrish, Knott Bldg., Dayton, archt. CD 7/20.

▲ **O., Mansfield**—SCHOOLS—School Dist., voted schools, $2,500,000. CD 7/20.

▲ **O., Massillon**—SCHOOL—Bd. Educ., voted $4,125,000 bonds Nov. 2, high school, 4 grade school addns., CD 7/20.

O., Miamisburg—SCHOOL—Bd. Educ. voted bonds Nov. 2, school, $710,000. CD 6/28.

▲ **O., North Canton**—SCHOOL—Bd. Educ., voted $1,225,000 bonds Nov. 2, grade school and new high school. CD 7/20.

O., North College Hill (Br. Cincinnati)—SCHOOL—North College Hill Bd. Educ., voted bonds Nov. 2, school bldgs. $890,000. CD 9/1.

▲ **O., Parma**—HOSPITAL—City, 6611 Ridge Rd., voted bonds Nov. 2, hospital. $2,500,000. CD 6/28.

▲ **O., Warren**—JAIL AND OFFICES—Comrs. Trumbull Co., Court House, defeated $1,275,000 bonds Nov. 2, county jail and office. CD 7/22.

▲ **O., Wooster**—SCHOOLS—City, voted $1,500,000 bonds Nov. 2, schools. CD 4/20.

▲ **Pa., Ardmore**—SCHOOLS—Lower Merion Twp. School Dist., Ardmore, voted $5,100,000 bonds Nov. 2, Senior High School and Junior High School. CD 9/27.

▲ **Tex., Pasadena**—SCHOOLS, etc.—Pasadena Independent School Dist., Pasadena, high school, $1,425,000; bus depot, $100,000; Elementary School No. 1, $549,000; Elementary School No. 2, $549,000; lower grade schools repairs and addns., $715,500; upper grade schools repairs and addns. $584,500.

▲ **Tex., Victoria**—SCHOOLS—Victoria Independent School Dist., Victoria, defeated bonds Oct. 23, Junior High School, $750,000; elementary school, $340,000; 8-room addns., Sheilds-Hopkins Schools. 310,000.

▲ **Wis., Madison**—AUDITORIUM, CIVIC CENTER—City, City Hall, voted $4,000,000 bonds Nov. 2, municipal auditorium and civic center. CD 8/10.

COMMERCIAL BUILDINGS

▲ **Calif., Fullerton**—DWELLINGS—Linda Lyle Estates, Inc., c/o Wm. M. Bray, archt., 962 N. La Cienega Blvd., Los Angeles, 388 frame, stucco dwellings. $3,000,000.

▲ **Calif., La Mirada**—DWELLINGS—James N. Starbird & Assocs., 1166 E. 58 St., Los Angeles, plans by Wm. M. Gray, 962 N. La Cienega Blvd., Los Angeles, 600 dwellings, $5,000,000.

▲ **Calif., Los Angeles**—DWELLINGS—Apex Constr. Co., 12415 Ventura Blvd., Studio City, plans by Reichl & Starkman, 251 S. Robertson Blvd., Beverly Hills, 122 dwellings, Beachy and Brandford Sts., Van Nuyt District. $1,200,000.

▲ **Calif., Los Angeles**—OFFICE—Pacific Homes Corp., c/o Neptune & Thomas, archts., 1560 W. Colorado St., Pasadena, 3 story, 40,000 sq. ft. lift slab office, Santa Monica and Hobart Blvds. $1,000,000.

▲ **Calif., Los Angeles**—DWELLINGS—Pelton & Zahler, 373 S. Robertson Blvd., Beverly Hills, plans by Reichl & Starkman, 251 S. Robertson Blvd., Beverly Hills, 155 frame, stucco dwellings, San Pedro District. $1,500,000.

Calif., Sacramento—SHOPPING CENTER—Artz & Cook, 813 J St., plans by Karel Kooper & Assocs., 954 S. La Brea Ave., Los Angeles, shopping center, at Fruitridge Vista, Lemon Hill Center, 44 St. and Lemon Hill Ave. $500,000.

Calif., San Francisco—BUILDING—Emporium-Capwell Co 835 Market St., remodeling of building Mission St. between 4 and 5 Sts. $800,000. Hall, Pregnoff & Matheu, 251 Kearny St., structural consult. engrs.

Calif., Torrance—DWELLINGS—Landbar Constr. Corp., 343 Hawthorne Way, Hawthorne, 71 frame, stucco dwellings. $700,000.

Calif., West Covina—DWELLINGS—McDonald Brothers, c/o Edward H. Fickett, archt., 5657 Wilshire Blvd., Los Angeles, 96 frame, stucco dwellings. $800,000.

Calif., West Covina—DWELLINGS—James N. Starbird & Assocs., 1166 E. 58 St., Los Angeles, plans by Wm. M. Bray, 962 N. La Cienega St., Los Angeles, 96 dwellings. $900,000.

▲ **Ill., Chicago**—CHURCH—Old St. Mary's Church, 9 and Wabash Sts., plans by Belli & Belli, 8 S. Dearborn St., Zone 3, church, Wabash St., near Jackson Blvd. $1,500,000.

Ill., Lake Forest—DORMITORIES—Lake Forest University Lake Forest, one men's and one women's dormitories, $700,000.

Ind., Hammond—SCHOOL—Owner, c/o Kenneth Vaughn, archt., 6714 Madison St., Catholic Elementary School. $500,000.

Ind., Terre Haute—DORMITORY—Rose Polytechnic Institute, R.R. 5, East National Rd., 125-room dormitory and dining facilities expansion $500,000.

Kan., Mission—SCHOOL—St. Agnes Parish, Mission, catholic high school, $980,000.

▲ **Ky., Louisville** — OFFICE — Bldg. Committee, Dr. Henry Basman, chn. Bldg. Comn., Heyburn Bldg., medical office, Preston and Eastern Parkway. $1,250,000. Wagner & Potts, 419 Fincastle Bldg., consult. engrs.

Ky., Louisville—DRUG STORES—Plaza Centers, Inc., William A. Gardner, pres., Coleman Bldg., 309 S. Third St., drug store, Dixie Plaza Center, 18 St. Rd.; drug store at Preston Shopping Center, Preston Hy. and Dunett Lane. $800,000. Walgreen Drug Co., 4300 W. Peterson St., Chicago, Ill., operators. CD 3/25.

(Continued on page 138)

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(Continued from page 136)

▲ **Mass., Cambridge**—SHOPPING CENTER—Signo Enterprises, 48 Geneva St., Dorchester, plans by Salsberg & LeBlanc, 1411 Commonwealth Ave., Brighton, masonry shopping center, industrial development, Alewife Brook Parkway. $2,500,000.

▲ **Mass., Holyoke**—HOSPITAL—R. C. Diocese of Springfield, Chancery Office, 62 Elliot St., Springfield, hospital to replace Providence Hospital. $4,000,000. CD 5/2/46.

▲ **Neb., Lincoln**—HOME OFFICE—Bankers Life Insurance Co., 1345 N. St., plans by Unthank & Unthank, 527 Sharp Bldg., Lincoln, Neb. and Shreve, Lamb & Harmon, 11 E. 44 St., New York, N. Y., home office. $1,300,000.

N. Y., Brooklyn—APARTMENT—Laner Realty Corp., 26 Court St., Zone 2, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 59-family apartment and 48-car garage, 9801 Shore Rd. $600,000.

▲ **O., Toledo** — SHOPPING CENTER — Bernard Greenbaum Assocs., 59 E. Van Buren St., Chicago, Ill. and The Lion Store, 325 Summit St., shopping center, on 34-acre site, W. Central Ave. and Secor Rd. $2,000,000.

▲ **Okla., Tulsa**—OFFICE—Southwestern Bell Telephone Co., 614 S. Main St., telephone bldg. 5th and Cincinnati Sts. $5,000,000. J. B. Kibler, c/o owner, 405 N. Broadway, Oklahoma City, engr. CD 12/19/52.

▲ **Pa., Conshohocken**—HIGH SCHOOL—Roman Catholic Archdiocese of Phila., 310 N. 19 St., Phila., high school in Plymouth Twp., near here. $1,000,000.

▲ **Pa., Pittsburgh**—MUSEUM, etc.—Carnegie Institute, 4400 Forbes St., plans by Charles & Edward Stotz, 801 Bessemer Bldg., museum and library imprvs., various repairs and imprvs. $3,000,000.

▲ **Pa., Pittsburgh**—HOSPITAL, etc.—Children's Hospital, De Sota St., plans by Alfred D. Reid & Assocs., Keystone Bldg., 2 to 7 story, 163,650 sq. ft. stone, masonry hospital addn., alterations. $4,500,000.

▲ **Tex., Amarillo**—OFFICE—Pioneer Natural Gas Co., 418 Polk St., plans by Emmett F. & James F. Rittenberry, Fisk M & P Bldg., 7 story bsmnt., steel office structure to be exterior aluminum skinned. $1,250,000.

Tex., El Paso—SHOPPING CENTER—Mayfield Development Co., Davis Mayfield, Jr., 3130 Durazno St., 100,000 sq. ft., masonry shopping center near Hy. 54. $750,000.

Tex., Fort Worth—LIBRARY, etc.—Texas Wesleyan College, c/o Dr. Lawsone, pres., T. W. C. Campus, plans by Wyatt C. Hedrick Co., 1200 T. & P. Bldg., 2 or 3 story, masonry library and admin. bldg., E. Rosedale St. $550,000.

▲ **Tex., Houston**—BUILDING—Hermann Prof. Bldg. & Estate, 6410 Fannin St., plans by Kenneth Franzheim, 802 Lovett St. and John Freeman, Jr., Houston Land & Trust Co. Bldg., 15 story addn. to existing 15 story Hermann Prof. Bldg., 214 Travis St. $4,000,000.

▲ **Tex., San Antonio**—SHOPPING CENTER—Northgate Corp. and Lupton & Arnold, Inc., Gunter Bldg., plans by Harvin C. Moore, 2006 W. Alabama St., Houston, shopping center, acre tract off Vance-Jackson Rd. $6,000,000. CD 10/26.

Wis., Milwaukee—CHURCH—Annunciation Greek Orthodox Congregation, 1300 N. Broadway, Zone 2, church, $500,000. (Location-Changed). CD 7/31/53, under Wis., Wauwatosa.

▲ **Ont., Toronto**—SHOPPING CENTER—Grand Union Carroll's Ltd., 76 Biggar Ave., Hamilton, shopping center for five different types of stores and parking lot at Sheppard Ave. and Yonge St. $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Richmond**—WAREHOUSE—United Grocers Ltd., 685 6 St., San Francisco, warehouse at Harbor Gate Public Housing Site, $1,000,000. Austin Co., 618 Grand Ave., Oakland, consult. engr.

Conn., Meriden—WAREHOUSE, etc.—Meriden Lumber Co., 174 State St., warehouse and office, State St. $500,000.

▲ **Ky., Russellville**—PLANT—Rockwell Mfg. Co., 689 Liberty St., DeBois, Pa., 1 story, brick, steel, 100,000 sq. ft. mfg. plant, $1,000,000.

Mo., St. Louis—GARAGE—Morris H. Mandel & Edward F. Poherer, 901 Chestnut St., Zone 1, commercial garage Broadway and Washington Ave., incl. razing commercial bldg. now on site and constr. three level garage, incl. two below ground level and installation of footings to carry a 15 story bldg. $700,000.

▲ **N. M., Carlsbad**—POTASH MINE—Freeport Sulphur Co., 161 E. 42 St., New York, N. Y. and Pittsburgh Consolidation Coal Co., Koppers Bldg., Pittsburgh, Pa., potash mine, incl. excavating, shaft, elevators, refinery, boilers, etc. $15,000,000.

▲ **N. Y., Farmingdale**—INDUSTRIAL—Farmingdale Industrial Sites Co., c/o Robert Rosenwasser, engr., 110 W. 40 St., New York, Zone 18, 10 one and two story industrial bldgs., 64-acre tract. $2,000,000.

▲ **O., Louisville**—FACTORY—Macomber, Inc., Stanley Macomber, chn., 1925 10th St. N. E., Canton, two main bldgs. 100x100 ft. each factory to mfg. structural steel; machine shop, paint shop, storage bldg. and offices on 52-acre tract, near here. $1,500,000.

▲ **Tex., Nederland**—REFINING UNIT—Pure Oil Co., Nederland, catalytic refining unit at Smiths Bluff. $2,000,000.

▲ **Wis., Milwaukee**—INDUSTRIAL CENTER—H. Forman, T. Posner, M. Karan, 105 E. Silver Spring Dr., first unit, 1 story, 100x200 ft. of industrial center, Total est. $25,000,000.

▲ **N. S., Sheet Harbor**—PULP MILL—Hearst Pub. Co., 1713 Fisher Bldg., Detroit, Mich., U. S. A., new pulp mill, 50 mi. from Halifax, $10,000,000.

▲ **Ont., Dryden**—PLANT EXPANSION—Dryden Paper Co. Ltd., Dryden, paper plant expansion, new bleach plant, $11,600,000. CD 12/14/51.

Que., Montreal—PLANT—Gillette Safety Razor Co. Ltd., 1685 St. Alexander St., plant, Cote Diesse Rd. $500,000.

UNCLASSIFIED

▲† **Calif., Oakland**—FIRE PROTECTION FACILITIES—Twelfth Naval District, San Bruno, fire protection facilities, Oakland Naval Supply Center. $1,100,000.

▲ **Calif., San Francisco**—STADIUM—City and San Francisco Co., City Hall, voted $5,000,000 bonds, stadium. CD 8/4.

Conn., Hartford — DRIVE-IN THEATRE — Abraham C. Bronstein, 178 Saybrook St., drive-in theater, 25-acre tract on west side of Veterans Hy. North Meadows, $600,000.

Georgia—RURAL DISTRIBUTION LINES—Walton Electric Membership Corp., Monroe, 125 mi. rural distr. lines and sys. imprvs., Walton Co. $635,000.

Illinois—RURAL DISTRIBUTION LINES—Illinois Valley Electric Co-operative, Princeton, 15 mi. rural distr. lines, headquarters facilities, sys. imprvs., Bureau Co. $755,000. CD 2/12/48.

▲ **O., Cincinnati**—PLAYGROUND—City, City Hall, defeated bonds Nov. 2, various playground imprvs. $1,000,000. CD 8/31.

▲ **O., Cleveland**—ZOO—City, Dpt. P. Properties, City Hall, defeated bonds Nov. 2, Cleveland Zoo imprvs. $1,000,000. CD 7/1.

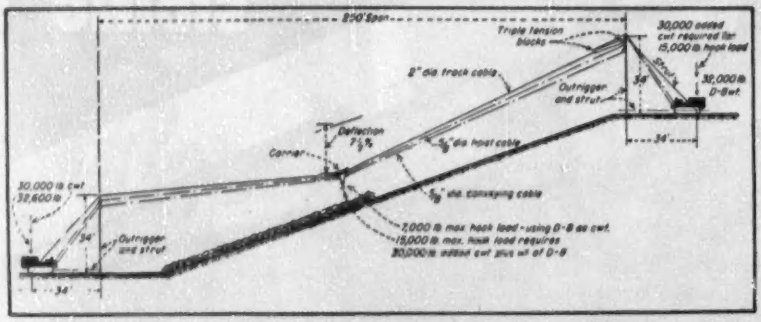
▲ **O., Cleveland**—BULKHEADING—City, Dpt. P. Service, City Hall, voted bonds Nov. 2, bulkheading, etc. Lake Erie. $2,000,000. CD 7/1.

▲ **O., Cleveland**—PARKS—City, Dpt. P. Properties, City Hall, voted bonds Nov. 2, park imprvs. lake shore, $4,350,000; recreation centers, playgrounds, $2,700,000. CD 7/1.

▲ **O., Cleveland**—PARKING—City, City Hall, voted bonds Nov. 2, off-street parking. $4,000,000. CD 7/1.

▲ **O., Columbus**—RECREATION—City, City Hall, voted bonds Nov. 2, recreation, $1,500,000. CD 7/16.

▲ **Pa., Phila.**—UTILITIES, BLDGS, etc.—City, City Hall, voted $54,630,000 bonds Nov. 2.
voted $5,500,000 for recreation facilities; imprv. convention hall and commercial museum bldgs.;
voted $26,250,000, imprv. water, sewerage and sewage treatment systems.
voted $10,000,000, imprvt. of Phila. Gas Works.
voted $10,880,000, imprvs. to International Airport hospitals; playgrounds; streets; the house of correction; police and fire stations; signal and electrical systems.
voted $2,000,000, roads, streets, bridges and bldgs. CD 10/28.


250' Span
Triple tension blocks
30,000 added cwt required for 15,000 lb hook load
2" dia track cable
Outrigger and strut
Struct
34'
30,000 lb D-8 wt
Deflection 7½%
Corner
⅝" dia haul cable
34'
30,000 lb cwt 32,600 lb
⅝" dia conveying cable
2,000 lb max hook load - using D-8 as cwt.
15,000 lb max. hook load requires 30,000 lb added cwt plus wt of D-8
34'
Outrigger and strut

Portable cableway, strung between crawler tractor-mounted booms, served one contractor well in placing a rock mat on the slope of a river bank. Tautline moved with ease, despite extra counterweights needed for heavy hook loads.

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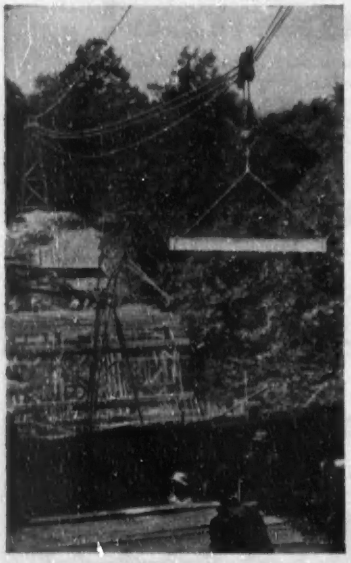

Materials for highway bridge in Turkey Run Indiana State Park were spotted with a tautline on wooden A-frame towers, 40-ft. high. Cableway, concrete mixer and small sawmill were the only power equipment used.

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Highway Bridge in Indiana—All material for this 250-ft. concrete structure was transported by a Sauerman 2-ton tautline. The cableway spanned 460 ft. across a deep ravine.

Kansas River Dam—A power company uses a small Sauerman cableway to transport materials for repair and maintenance. The unit spans the river over the top of the dam. Workmen ride a special cage to work over the dam and raise or lower flash boards used to control height of the reservoir.

Power Plant for a Kentucky Dam—100,000 tons of Government furnished aggregate were delivered to the opposite bank, 1000 ft. away. A belt conveyor, supported by adequate suspension cables, would have been too expensive. Truck delivery would have entailed a long haul and construction of roads. A 4-ton Sauerman cableway was installed. From the loading point 280 ft. above the building site, loading buckets moved by gravity at 1200 fpm. to the batch plant across the river.

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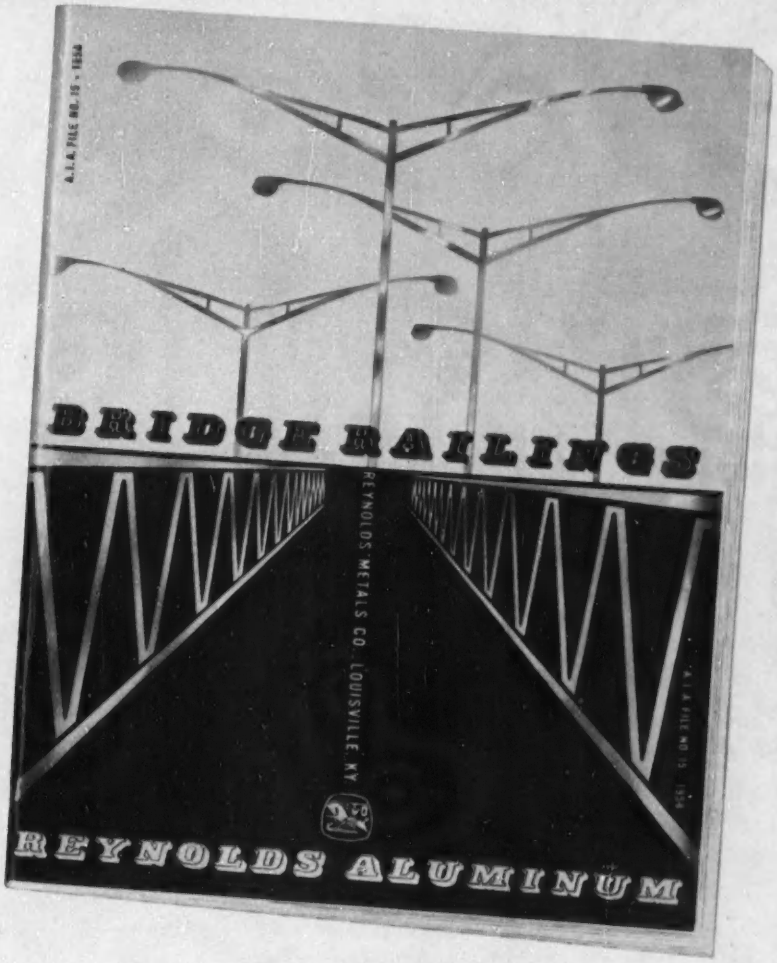
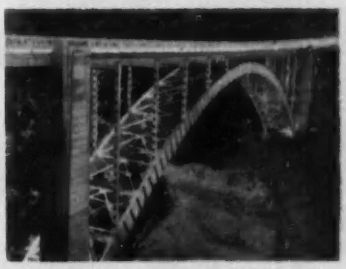
* This is a brief adaptation of a 4-page article on small cableways recently published in a leading construction magazine. Reprints are available from Sauerman Bros., Inc.

New Design and Data Handbook on
ALUMINUM BRIDGE RAILINGS



Reynolds Aluminum Railings on Southwest Trafficway, Kansas City, Mo.



Reynolds Aluminum Railings on Pinto Creek Bridge, Globe, Arizona

Reynolds Aluminum Railings, Light Standards and Electrical Conduit Racks on Bay St. Louis Bridge, Miss.

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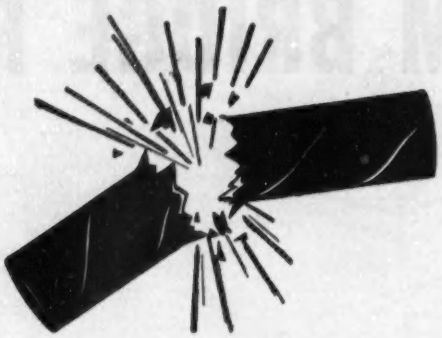

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Mass., Falmouth**—HANGARS—BA On Or About 12/21—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, two multi-purpose hangars, Otis Air Force Base, ENG-19-016-55-51. $800,000. Plans deposit $10. CD 5/25.

BIDS ASKED—BUILDINGS

▲ **Mass., Westwood**—SCHOOL—BA 12/8—Town, School Bldg. Comn., high school, Nahatan St. $1,200,000, Coletti Bros., 687 Boylston St., Boston, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Marinucci Brothers & Co., Inc., 51 Ceylon St., Dorchester, Mass. LB $5,407,181. Sect. 2 hy. and bridge, Boston, Milton and Quincy. Bids Nov. 9. CD 10/13.

BUILDINGS

LOW BIDS AND CONTRACTS

Frouge Constr. Co., Inc., 74 Goodwell St., Bridgeport, Conn. Owner Builds. $750,000-$1,000,000. 8 story, 73x208 ft., concrete, brick APARTMENT with 92x180 ft. GARAGE, North Ave. and Cartwright St., BRIDGEPORT, CONN.

▲ **Frechette & Floryan, Inc.**, 64 Edwards St., Hartford, Conn., CA, $723,850, est $700,000 Proj. BI-X-85, BOY PATIENT BLDG.; CA $674,900, Proj. VI-X, 86 GIRL PATIENT BLDG. at State Training School, MANSFIELD, CONN. State, Ralph G. Macy, comr., State Office Bldg., Hartford, Conn. Bids Oct. 13. CD 10/20, under LB.

George B. H. Macomber Co., 19 Milk St., Boston, Mass., CA, $800,000, RESEARCH CENTER, physics and biology units, NEW HAVEN, CONN. Yale University, Derby Ave., New Haven, Conn. Bids Nov. 2. CD 10/27.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 23 Maryland

▲† **N. Y., Newburgh**—DORMITORY, etc.—BA About 2/10—U. S. Eng., 80 Lafayette St., New York, Zone 13, AM Dormitory and BOQ, FY '55, Stewart Air Force Base. $1,000,000-$3,000,000. James C. MacKenzie, 5 E. 57 St. New York, Zone 22, archt. CD 3/18.

BIDS ASKED—BUILDINGS

▲ **N. Y., Brooklyn**—HIGH SCHOOL—BA 12/10—Bd Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures; electric passenger elevator for Wm. E. Grady Vocational High School, Brighton 6th St., between Shore Parkway and Brighton 4th Rd. $5,154,500. Plans deposit $40 general constr.; $14 each plumbing and drainage, heating and ventilating, $20; electrical and lighting fixtures, $5 elevator. CD 7/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Hogeboom & Canfield, Inc., New Hartford, N. Y. CA $830,379, est. $945,000. Imprv. 4.44 mi. Fassett-Southport, SH 1563, FARC 54-86, Chemung Co.;
White Oak Excavators, Inc., Plainville, Conn., CA $2,396,916, est. $3,043,000. TSP 54-3, RC 54-93, Columbia Co.;
H. L. Baughman, Inc., E. Henrietta Rd., Rochester, N. Y., CA $1,173,934, est. $1,174,000, 0.30 acc., 0.32 hy. mi., City of Lockport-Genesee St.-Walnut St., FAC 54-10, Niagara Co. Grand total $4,401,229. Bids Aug. 19. CD 8/23, under LB.

† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y. postponed bids to have been opened Dec. 15 indefinitely, misc. facilities ACW sites at Montauk, Syracuse, Watertown and Saratoga. NEW YORK. Est. $100,000-$500,000. CD 10/6.

† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y. postponed bids to have been opened Dec. 16 indefinitely, ATS warehouse and AC fueling facilities, FYY 52, Niagara Air Force Base, NIAGARA FALLS, N. Y. Est. $100,000-$500,000. CD 10/20.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,
Charles F. Vachris, Inc., 9024 Ditmas Ave., Brooklyn, N. Y., LB $1,275,050, Contract N-6, piers and 4 abutments for viaducts for Ramp E, F, G and H, portion of Newark Bay-Hudson Co. Exten. on viaduct, retaining wall, etc. at Newark Airport Interchange of N. J. Turnpike in City of Newark, Essex Co. Bids Nov. 9. CD 10/14.

▲ **NEW JERSEY-PENNSYLVANIA**—Delaware River Port Auth., Administration Bldg., Camden, N. J.
Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., LB $3,347,345. Contract G-2, superstructure for approaches from Gloucester Anchorage to Newton Creek Bids Nov. 10. CD 9/17.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4th St., Harrisburg,
C. J. Langenfelder & Son, Inc., 8427 Pulaski Hy., Baltimore, Md., CA $3,148,649. constr. 6.05 mi. (Sec. 35-F) of Northeastern exten., Salford Twp. Montgomery Co. and West Rockhill and Milford Twps. Bucks Co. Bids Oct. 7. CD 10/8, under LB.

▲ **MARYLAND**—State Rds. Comn., 108 Lexington St., Baltimore, Zone 2,
James Julian, Inc., 405 S. Dupont Rd., Elsmere, Del. LB $660,650. relocation, surf. 3.75 mi. State Rte. 113 near Berlin, Contr. WO 3320-4-120, Worcester Co.;
Nello S. Teer, Box 1131, Durham, N. C. LB $266,221. wid'n., resurf. 4.394 mi. State Rte. 354, Willards, Contr. WI 284-1-220, Wicomico Co.;
Rea Constr. Co., Box 2015, Charlotte, N. C. LB $739,668 surf. 2.98 mi. State Rte. 205 dual hy., near Briar Ditch, Contr. P 724-9-320, Prince George Co. Bids Nov. 4. CD 10/25.

† **Wright Constr. Co.**, 504 25 Ave., Columbus, Ga., CA $735,847, local flood navigation proj. Anacostia River Basin, Northeast Branch, CIVENG-49-080-55-9, D. C., WASH. and MARYLAND. U. S. Eng., First and Douglas St. N. W., Wash. 25, D. C. Bids Oct 13. CD 10/20, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Windmill Farms Homes**, c/o Herman H. York, archt., 90-04 161 St., Jamaica 32, N. Y. Owner Builds. $3,000,000. 100 HOUSES, tract on Rte. 22, ARMONK, N. Y.

▲ **Milford Park Homes**, c/o N. M. Obedin Co., 124 Jackson St., Hempstead, N. Y. Owner Builds. $1,000,000. 55 HOUSES, tract Forest Ave. and Clyde St., BALDWIN, N. Y.

▲ **Livingston Garden Apartments**, c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,000,000. 6 story APARTMENT, Aurelia Court and E. 31 St., BROOKLYN, N. Y.

▲ **Planet Constr. Corp.**, 11 W. 42 St., New York 36, N. Y., LB $1,155,000, general constr. Public SCHOOL 21, Chauncey St. and Patchen Ave., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 8. CD 10/11.

▲ **John T. Brady & Co.**, 606 S. 47 St., New York, N. Y. CA $2,715,000, general constr. county JAIL, Carmen Rd., EAST MEADOW, N. Y. Nassau Co., Court House, Mineola, N. Y.

▲ **Saxon Knolls Homes**, c/o Karl Bloch, archt., 1850 Landsdown Ave., Merrick, N. Y. Owner Builds. $1,350,000. 75 HOUSES, 20-acre tract, Lyons St. and Fleetwood Ave., HUNTINGTON, N. Y.

▲ **Wiltshire Homes**, c/o Samuel Paul, archt., 89-51 164 St., Jamaica, N. Y. Owner Builds. $1,000,000. 100 HOUSES, 25 acre tract, Jericho Turnpike, EAST HUNTINGTON, N. Y.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y., LB $1,762,000, general constr.;
Charles Michaels, Inc., 315 Gold St., Brooklyn 1, N. Y. LB $301,983, electrical work for Junior HIGH SCHOOL 217, 144 St. and 85 Ave., JAMAICA, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 10. CD 11/3.

▲ **Thomas Calagna & John Ruggerio**, c/o Herbert Tannenbaum, archt., 205 E. 43 St., New York 17, N. Y. Separate Contracts. $1,000,000. SHOPPING CENTER, 6-acre tract Little Neck Parkway and Horace Harding Blvd., LITTLE NECK, N. Y.

▲ **Tishman Realty Constr. Co.**, 445 Park Ave., New York, N. Y., Own Forces. $40,000,000. 34 story OFFICE, 5 Ave., 52 to 53 Sts., NEW YORK, N. Y, Emery Roth & Sons, 575 Madison Ave., New York, N. Y., archts.

▲ **Joseph P. Blitz, Inc.**, 1 E. 57 St., New Fork 22, N. Y. CA $1,700,000. 17 story OFFICE to be called Douras Bldg., 545 Madison Ave., NEW YORK, N. Y. 545 Madison Corp., c/o Joseph P. Blitz, 1 E. 57 St., New York 22, N. Y. Emery Roth & Sons, 575 Madison Ave., New York, N. Y., archts. CD 10/25.

▲ **Grayco Builders**, 106-21 Continental Ave., Forest Hills 75, N. Y., LB $1,235,000, general constr. PUBLIC SCHOOL 130, Prospect Ave. and E. 156 St., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 5. CD 10/11

Sokolov Brothers & Sons, 364 Conklin St., Farmingdale, N. Y. Owner Builds. $900,000. 100 HOUSES, 30-acre tract, Nesconset Hy. and Rte. 112, PORT JEFFERSON, N. Y.

▲ **Saddle Wood Estates**, c/o N. M. Obedin Co., 124 Jackson St., Hempstead, N. Y. Owner Builds. $1,500,000. 72 HOUSES, tract at Carroll on Ave. and Olcott St., WANTAGH, N. Y.

▲ **Guildford Park Homes**, c/o Nassau Homes Realty Corp., 1 N. Merrick Ave., Merrick, N. Y. Owner Builds. $2,000,000. 200 HOUSES, Brookvale Ave. and Merrick Rd., WEST BABYLON, N. Y.

▲ **Briar Point Homes**, c/o Boyle Co., 4 Julian Pl., Elizabeth, N. J., Owner Builds. $3,600,000. 245 HOUSES, on 105-acre tract on Ridgedale Ave., FLORHAM PARK, N. J.

Country Club Homes, c/o The Wells Agency, 150 S. Washington Ave., Bergenfield, N. J. Owner Builds. $500,000, 18 HOUSES on tract adjoining Beeches Country Club, HAWORTH, N. J.

Costanza Contg. Co., Pennsauken, N. J., LB, $880,000 HIGH SCHOOL, PENNSVILLE, N. J. Lower Penns Neck Twp. Bd. Educ., Pennsville, N. J. Bids Sept. 9.

▲ **A. Kaplan & Son Ltd.**, 80 Huguenot Ave., Englewood, N. J., CA, $1,500,000, 120-family garden APARTMENT, on 10-acre tract, WESTFIELD, N. J. Westfield Manor, c/o Leonard Feinen, archt., 320 Lincoln Ave., Hasbrouck Heights, N. J.

▲ **William F. Sutter**, Schley St., Nescopeck, Pa., LB $1,344,220, general constr. Senior HIGH SCHOOL for Connellsville Joint School Bd., CONNELLSVILLE, PA., State Public School Building Auth., 101 S. 25 St., Harrisburg, Pa. Bids Nov. 9. CD 10/6.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 30 West Virginia

BIDS ASKED—BUILDINGS

La., **New Orleans**—SCHOOL—BA 12/7—Orleans Parish School Bd., 703 Carondelet St., 1 story Edward Henry Phillips Negro Elementary School, 3900 Cadillac St. $604,000. Plans deposit $35, Jules K. dela Vergne, 412 Pere Marquette Bldg., archt. CD 7/1/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. W. Bateson Co., Inc.**, 420 Gibraltor Life Bldg., Dallas, Tex., LB $1,312,251. maintenance hangar, double cantilever type bldg., Pope Air Force Base, ENG-31-075-55-12, FORT BRAGG, N. C. U. S. Eng., 508 Customhouse, Wilmington, N. C. Bids Nov. 3.

▲† **Blythe Brothers Co. & W. T. Price Dredging Corp.**, 2911 Hutchinson Ave., Charlotte, N. C., CA, $1,807,145 airfield paving, washrock and roads, Homestead Air Force Base, HOMESTEAD, FLA. U. S. Eng. P.O. Box 4970, Jacksonville, Fla. Bids Oct. 27. CD 9/17.

▲† **Allis-Chalmers Mfg. Co.**, 864 S. 70 St., Milwaukee 1, Wis., and **Consolidated Western Steel Div., U. S. Steel Corp.**, P. O. Box 2015, Terminal Annex. Arcade Station, Los Angeles, Calif., CA $6,255,076. design and construct plenum evacuation system for propulsion wind tunnel, Arnold Development Center, TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn CD 11/14/49, under Public Buildings.

BUILDINGS

LOW BIDS AND CONTRACTS

The Byrum Constr. Co., 12 and Walter Sts., Wheeling, W. Va., LB, $758,840, 120x600 ft., with 4 parking levels, total 948- spaces, PARKING GARAGE, WHEELING, W. VA. City, City Hall, Wheeling, W. Va. Bids Sept. 29. CD 9/24.

Claussen & Webster, 1394 Gwinett St., Augusta, Ga., CA $551,645. 80,000 sq. ft. St. Marks Negro HIGH SCHOOL, GREER-TAYLORS, S. C. Bd. Trustees School Dist. No. 520, Greenville, S. C. Bids Nov. 2. CD 10/1.

▲† **Williams Constr. Co.**, 1032 13 St., Columbus, Ga., LB, $3,905,918, Kelley Hill BARRACKS, and supporting facilities, ENG-09-133-55-9, FORT BENNING, GA. U. S. Eng., 200 E. St. Julian St., Savannah, Ga. Bids Oct. 19. CD 10/5.

J. A. Jones Constr. Co., Box 1818, Shreveport, La. CA $743,900, est. $900,000. 1 story, JUNIOR HIGH SCHOOL, Hollywood, Union and Mansfield Rd., SHREVEPORT, LA. Caddo Parish School Bd., Shreveport, La. Bids Nov. 2, awarded Nov. 4. CD 10/26.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—APARTMENT—Bids Asked—Owner, c/o Louis R. Solomon, 61 W. Superior St., Chicago, Zone 10, 18 story, 220-unit apartment, 3440 Lakeshore Dr., $2,500,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, Zone 4,
Traylor Brothers, Station B, Box 66, Evansville, Ind., LB $4,063,738 Contract C-20/21, Indiana East-West Toll Road, La Porte Co. Bids Oct. 13. CD 9/17.

INDIANA—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, Zone 4,
Powers Thompson Constr. Co., 21 South Chicago St. Joliet, Ill., LB $531,019. Contract 10A, 0.525 mi. Indiana-East West Toll Road in Lake Co. Bids Nov. 3. CD 10/14.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, Zone 4,
Western Contrg. Corp., 400 Benson Bldg., Sioux City, Ia., CA $6,898,588, Contract C-38, C-39 and C-40/41 14.1 mi. paving Indiana-East West Toll Road, Elkhart and La Grange Counties, Bids Sept. 15. CD 9/17, under LB.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, Zone 4,
D. R. Smalley & Sons, Inc., 426 West Market St., Celina, O., CA $2,863,320 Contract C-26/27, Indiana East-West Toll Road, St. Joseph Co., Bids Oct. 20. CD 11/5, under LB.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, Zone 4,
Union Building & Constr. Co., 631 Main Ave., Passiac, N. J., CA $6,019,595, Contract C 48, 49 and 50, 13.1 mi. paving LaGrange and Steuben Counties. Bids Sept. 22, awarded Sept. 30. CD 9/24, under LB.

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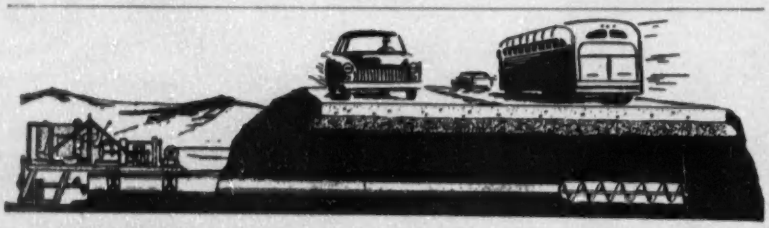

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▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, Zone 4, **Winston Bros. Co.**, 1470 Northwestern Bank Bldg., Minneapolis 2, Minn. and **A. D. Taylor Wheless Co., Inc.**, P. O. Box 67, Elmore, O., LB $7,577,768 Contracts C-17/18/19, Indiana East-West Toll Road in La Porte Co. Bids Nov. 3. CD 10/14.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis, **Louis Garvaglia**, 24240 Mound Rd., Centerline, Mich., and **Pierson Contg. Co.**, 200 Eddy Bldg., Saginaw, Mich., LB, $3,865,954. Contract C 30/31, Indiana East-West Toll Road, St. Joseph Co. Bids Nov. 10. CD 10/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Knowlton Constr. Co.**, 106 N. Main St., Bellefontaine, O., LB, $597,700. 4 story brick CLASSROOM for College of Commerce; LB, $618,600. 300-student capacity DORMITORY, ATHENS, O. Ohio University, Athens, O.

Knowlton Constr. Co., 106 N. Main St., Bellefontaine, O. CA Approx. $500,000. 1 and 2 story, 92,000 sq. ft. brick, concrete, steel WAREHOUSE and OFFICE for wholesale grocers, with inside loading facilities, BELLEFONTAINE, O. F. N. Johnson Co., 221 W. Chillicothe St., Bellefontaine, O. Philip T. Partridge, 914 Main St., Cincinnati, O., and Footlik-Rose Assocs., 3101 W. Chase St., Chicago, Ill., archts. CD 1/27.

H. E. Klefman Co., 3436 Lorain Ave., Cleveland 13, O., CA $506,157. 1 story masonry Brook Park Memorial SCHOOL, BEREA, O. Berea Bd. Educ., 390 Fair St., Berea, O. Awarded Nov. 8. CD 11/5, under LB.

Peters Constr. Co., 1075 Brookpark Rd., Cleveland 9, O. Owner Builds. $500,000. 1 story, 30,000 sq. ft. brick, steel manufacturing PLANT for lease to Efficient Tool & Die Co., 9314 Elizabeth Ave., Cleveland 4, O. INDEPENDENCE, O.

Evans Constr. Co., 1900 E. Washington St., Springfield, Ill., CA, $500,000, MILL addn., SPRINGFIELD, ILL. Pillsbury Mills, Inc., 1525 E. Phillips St., Springfield, Ill. Giffels & Vallet, 1000 Marquette Blvd., Detroit, Mich., archts.

I. Rush & Sons, 4204 Brook St., Louisville, Ky., LB, $667,349, SCHOOL buildings, SALEM, IND. Salem-Washington Twp. Bd. Educ., Salem, Ind. Bids Nov. 4. CD 10/27.

▲ **Ben Mattison**, 6253 N. Milwaukee St., Chicago, Ill., Own Forces, $1,400,000, 100 HOMES, near Waukegan Rd. and Howard Ave., near CHICAGO, ILL. B. J. Bruno, 4734 N. Hermitage St., Chicago, Ill., archt.

▲ **Jos. M. Brickman**, 8236 Lawrence Ave., Chicago, Ill., Own Forces, $3,000,000, 117 HOMES, NORWOOD PARK (STA. CHICAGO), ILL.

▲ **Miller-Davis Co.**, 1029 Portage St., Kalamazoo, Mich. CA Est. $1,500,000. PHYSICAL EDUCATION BLDG., Western Michigan College of Education, KALAMAZOO, Mich. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Sept. 28. CD 9/10.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. LB $962,449. general contract;
Zeni-Maguire Co., 12216 Woodrow Wilson St., Detroit 6, Mich. LB $365,500. mechanical contract for two 1 story SPECIAL TREATMENT BLDGS., Northville State Hospital, NORTHVILLE, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Oct. 26. CD 10/4.

Hy-Standard Builders, 19469 James Couzens St., Detroit 35, Mich. Owner Builds. $950,000. 100 brick single HOUSES, Ronald, Parliament, Hales and Couzens Sts., ROYAL OAK Twp., ROYAL OAK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Minn., Crystal—BA 12/8—Village, Mrs. Clara Hillstrom, clk., interceptor and trunk sanitary sewerage sys., lateral sewers, $500,000. Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, engrs. CD 9/21, under LB.

† **Oklahoma**—BA 12/9—U. S. Eng., Box 61, Tulsa, Zone 2, relocation Oklahoma City-Ada-Atoka Ry. and MKT R.R. (North Canadian River, Oklahoma City Floodway), CIVENG-34-066-55-14. $750,000-$1,750,000. CD 11/3, under LB.

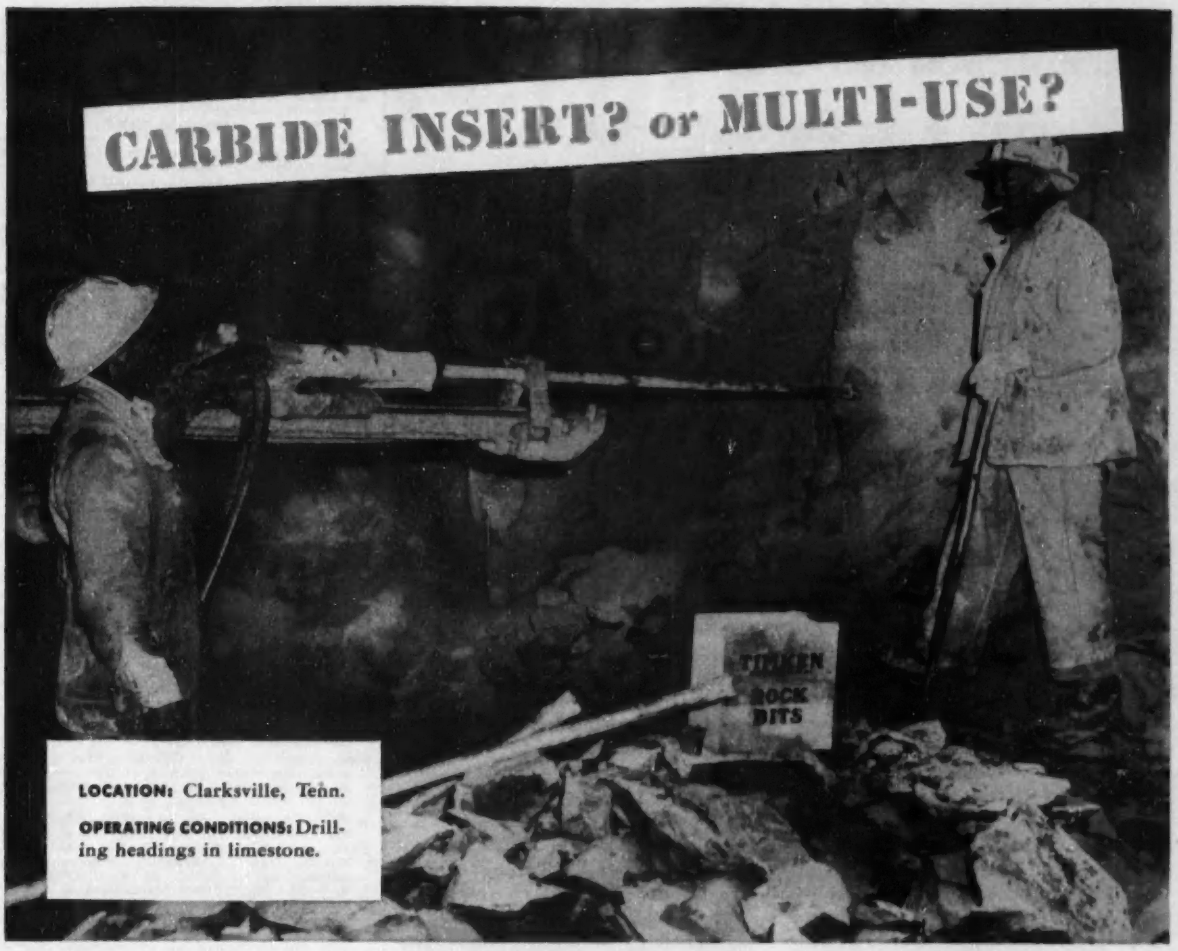
BIDS ASKED—BUILDINGS

▲ **Colo., Littleton**—SCHOOL—BA 11/23—School District No. 6, Arapahoe Co., 177 S. Grant St., 1 and 2 story, 72,000 sq. ft. brick, steel high school $1,350,000. Earl Chester Morris, 122 E. 19 Ave., Denver, engr. and archt.

▲ **Tex., Victoria**—HOSPITAL—BA 12/16—Victoria Co., Court House, 4 story, bsmnt., 100-bed steel, brick, stone county hospital. $1,750,000. Extended date. Blum & Guerrero, 4930 Maple St., Dallas, and Walter P. Moore, 2 Pinedale St., Houston, archts. Jordan C. Ault & Robert Rick, 804 E. Goodwin St., Victoria and O'Connell & Probst, 504 W. 7th St., Austin, engrs. CD 10/13.

▲ **Tex., Longview**—BANK, etc.—First National Bank, Longview, soon lets contracts 10 story, steel, stone, granite brick exterior bank and office, like bsmnt. and fdn. will be designed to carry total of 17 storys. $1,500,000. Plans deposit $35. Bid date changed. Alfred C. Finn, 1005 Bankers Mortgage Bldg., Houston, archt. Reg. F. Taylor, and Robert J. Cummings, both Bankers Mortgage Bldg., Houston, engrs. CD 10/27.

(Continued on page 144)



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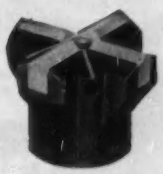

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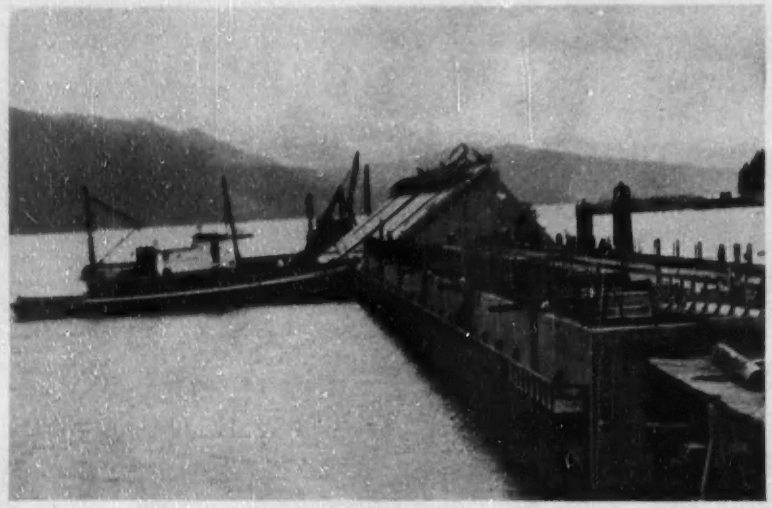

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(Continued from page 142)

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **English Electric Export & Trading Co., Ltd.,** 23-25 Beaver St., New York, N. Y. CA **$1,066,662,** est. $1,250,000. 2 turbines Table Rock Dam, White River Proj., near Branson, MISSOURI. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Sept. 29, awarded Nov. 5. CD 10/5, under LB.

Guy H. James Constr. Co., First National Bldg., Oklahoma City, Okla., and **Cunningham-Kiewit Co.,** 4229 Lafayette St., Omaha, Neb. CA **$932,300,** est. $1,607,000. Contr. 1, 3 caissons piers in Missouri River, KANSAS CITY, MO. City, c/o Reed McKinley, dir. P. Wks. Dpt., City Hall, Kansas City, Mo. Bids Oct. 26, awarded Nov. 5. CD 11/4, under LB.

▲ **S. Patti Constr. Co.,** 1340 Admiral Blvd., Kansas City, Mo. CA **$2,440,000,** est. $2,600,000. filter bldg., water plant pumping station, water storage 7 m.g. expansion, KANSAS CITY, MO. City, Melvin P. Hatcher, water dir., City Hall, Kansas City, Mo. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., engr. Bids Nov. 8. CD 11/1.

▲ **Del Webb Constr. Co.,** S. 23 Ave., Phoenix, Ariz. CA Est. **$2,775,000.** general contract enlarge former Blues Baseball Stadium for athletics, KANSAS CITY, MO. City, c/o Reed McKinley, dir. Dpt. P. Wks., City Hall, Kansas City, Mo. Awarded Nov. 9. CD 8/10.

▲† **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., Omaha, Neb. and **Morrison-Knudsen Co., Inc.,** 319 Broadway, Boise, Idaho., LB **$6,159,006.** spillway stilling basin, Garrison Dam and Reservoir Proj., Inv. 32-015-55-19, NORTH DAKOTA U. S. Eng., Riverdale, N. D. Bids Nov. 5.

Heidenfels Bros., Box 1917, Corpus Christi, Tex., LB **$949,188,** est. $1,500,000. 32 mi. county road imprvs., surf. 22 mi. curbed and asphalt-paved streets, FALFURRIAS, TEX. Brooks Co., Falfurrias, Tex. Bids Nov. 3. CD 10/19.

▲† **Lytle & Green Constr. Co.,** 250 Insurance Exchange Bldg., Sioux City, Ia., LB, **$6,270,790** Glendo Dam, Power Plant Foundation and Roads, Oregon Trail Div., Glendo Unit, Wyoming, Missouri River Basin Proj., Spec. DC 4255, WYOMING Bureau Reclamation, Dpt. Interior, Casper, Wyo. Bids Nov. 9. CD 10/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Viggo Jensen Co., Albert Lea, Minn., LB, **$577,944** Hilcrest DORMITORY, University of Iowa, IOWA CITY, IA. Iowa State Bd. Educ., State Capitol, Des Moines, Ia. Bids Nov. 3. CD 10/18.

▲ **R. P. Farnsworth & Co., Inc.,** 1515 S. Salcedo St., New Orleans, La., CA, **$1,432,800,** general contract; **Fischer Heating & Plumbing Co.,** 367 Adams St., Memphis, Tenn., CA, **$990,403,** mechanical (heating and plumbing);

I. K. Electric Co., 311 Main St., Little Rock, Ark., CA **$326,643,** electrical work for 9 story EDUCATIONAL WING, State Medical Center, LITTLE ROCK, ARK. University of Arkansas, Little Rock, Ark. CD 11/8, under LB.

▲ **Cooper Constr. Co.,** 110 S. 46 St., Omaha, Neb., CA **$1,077,913,** general constr.;

Grunwald, Inc., 110 Farnam St., Omaha, Neb., CA **$395,766,** mechanical work for Omaha Branch BANK addn., OMAHA, NEB. Federal Reserve Bank, 10 and Grand Sts., Kansas City, Mo. Bids Oct. 5. CD 9/30.

▲ **Wm. G. Farrington & Co.,** Builders, 1661 Tanglewood St., Houston, Tex., CA **$445,000.** (D) 16 all-masonry DWELLINGS, CA **$348,445** (E) 19 stone, brick DWELLINGS; CA **$310,000.** (F) six 2, story, stone DWELLINGS. HOUSTON, TEX. Grand total $1,103,445. Wm. G. Farrington, 1661 Tanglewood St., Houston, Tex. CD 7/13.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 1 California

BIDS ASKED—BUILDINGS

▲ **Wash., Renton**—GYMNASIUMS, etc.—BA 12/7—School District 403, 1525 4 Ave. N., 98x106 and 85x122 ft. gymnasiums and 70'125 ft. cafeteria addns. to high school, rein.-con. masonry on piling, $1,000,000. Mallis & DeHart, Lyon Bldg., Seattle 4, Wash., archts. CD 11/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Morrison-Knudsen Co., Inc.,** 411 W. 5 St., Los Angeles, Calif., LB, **$816,744,** est. $681,329. earthwork, concrete lateral lining, structures for Unit 2, Dome and Wellton-Mohawk Distribution sys., Gila Proj. Spec. DC 4258, ARIZONA. Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids Nov. 3. CD 9/27.

† **Stolte, Inc.,** 8451 San Leandro St., Oakland, Calif., CA **$729,099,** buildings, power lines, utilities, etc. at Air Force Communications Station, ENG-04-203-55-15, Spec. 3492, WINNEMUCCA, NEV. U. S. Eng., 150 New Montgomery St., San Francisco, Calif. Bids Oct. 8, awarded Nov. 2. CD 10/20. under LB.

† **Somer & Stacy,** Box 938, Klamath Falls, Ore., CA, **$632,698,** est. $640,687. earthwork, structures, etc. Corning Canal, Red Bluff, Tehama Co., Spec. DC 4256, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Red Bluff, Calif. Bids Oct. 20, awarded Nov. 2. CD 10/28, under LB.

▲ † **Peter Kiewit Sons' Co., and Fredericksen & Kasler,** 442 Post St., San Francisco, Calif., CA, **$4,031,275** replacing paving, runway lighting, etc., ENG-04-203-55-19, CASTLE AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Oct. 26, awarded Nov. 1. CD 9/29.

▲ † **Vinnell Co., Inc.,** 1145 Westminster Ave., Alhambra, Calif., CA, **$1,453,989,** heavy bomber maintenance hangar, Edwards Air Force Base, ENG-04-353-55-49, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 2, awarded Nov. 3. CD 11/8, under LB.

Guy F. Atkinson Co., 60 El Circulo Dr., Pasadena, Calif., LB, **$603,485,** Proj. 78, Bixby Slough-Downing St. Storm Drain and portion of Proj. 79, Gaffey St. Storm Drain, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Oct. 29. CD 10/6.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Wm. C. Turner,** 1637 Stewart Ave., Las Vegas, Nev. CA **$2,500,000.** "River Queen" HOTEL, Rte. 40, swimming pool, etc., west of RENO, NEV. Wm. Moore, Root, Shrake, etc., Inc., 600 Fremont St., Las Vegas, Nev. Zick & Sharpe, 1806 S. Main St., Las Vegas, Nev., archts. Awarded Nov. 2.

Hadley-Cherry, Inc., 335 N. La Cienega St., Los Angeles, Calif., Owner Builds, **$518,000,** 74 frame, stucco DWELLINGS, Bellefont, Cedarglen & Cerritos Sts., AZUSA, CALIF. R. Russell, 621 S. Hope St., Los Angeles, Calif., archt.

L. C. Anderson Co., 3040 Hancock St., San Diego, Calif., CA, **$518,920,** new elementary SCHOOL and Washington, Lincoln and Harding SCHOOLS addns., EL CENTRO, CALIF. El Central Elementary School Dist., El Centro, Calif. Awarded Nov. 3. CD 3/21.

J. E. Burrell & Sons, 522 San Francisco Ave., Long Beach, Calif., LB, **$555,250,** est. $500,000 38,435 sq. ft. School Proj. No. 4, GARDEN GROVE, CALIF. Garden Grove School Dist., 11362 E. Stanford St., Garden Grove, Calif. Bids Oct. 29. CD 10/14.

Federal Built Homes, 1340 E. Wilson St., Glendale, Calif., CA, **$751,800.** 82 frame, stucco DWELLINGS Elm, W. Ave. H-12, Date St., LANCASTER, CALIF.

▲ **Gust K. Newberg Constr. Co.,** Sepulveda, Calif., LB, **$1,887,000,** general contract receiving and treatment unit at Metropolitan State HOSPITAL, NORWALK, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Nov. 4. CD 10/11.

† **Monson Brothers,** 475 6 St., San Francisco, Calif., CA, **$506,224,** EM BARRACKS, etc. at Oakland Army Base, ENG-04-203-55-22, OAKLAND, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Oct. 21, awarded Nov. 2. CD 11/4, under LB.

▲ **Valley Estates,** 6338 Wilshire Blvd., Los Angeles, Calif., Owner Builds, **$1,320,800,** 127 frame, stucco DWELLINGS, Cornelia St., Carlton and Belinda Aves., POMONA, CALIF. Palmer & Krisel, 11757 San Vicente Blvd., Los Angeles, Calif., archts.

▲ **The H. K. Ferguson Co.,** 74 New Montgomery St., San Francisco, Calif., **$1,500,000.** 41,000 sq. ft. ENGINE LABORATORY and 33,000 sq. ft. main bldg. expansion, RICHMOND, CALIF. California Research Corp., subsidiary of Standard Oil Co. of Calif., 225 Bush St., San Francisco, Calif. CD 3/30/50.

Kemp Brothers, 8750 Mettler St., Los Angeles, Calif., CA **$718,650,** California HIGH SCHOOL, WHITTIER, CALIF. Whittier Union High School Dist., 610 W. Philadelphia St., Whittier, Calif. Bids Nov. 3. CD 10/14.

CANADA

BIDS ASKED—BUILDINGS

▲ **Man., Winnipeg**—GARAGES, etc.—BA 12/7—Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont., 50 and 40 vehicle garages, radar and maintenance bldgs., gun drill bldg., service station, roadwork, sewer and water services at Canadian Army Camp, About $1,000,000. Plans deposit $100. CD 9/30/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEWFOUNDLAND**—Dpt. P. Wks., Parliament Bldg., St. Johns,

Concrete Products (Newfoundland) Ltd., Mt. Pearl, St. John's, Newfoundland, CA Total est. **$1,000,000.** foundation for 600 ft. bridge over Exploits River near Bishop's Falls, connecting the Botwood and Norris Arm sections of Trans-Canadian Hy. Awarded Nov. 2.

BUILDINGS

LOW BIDS AND CONTRACTS

Byers Constr. Co. Ltd., 5675 Western Ave., Montreal, Que., CA **$504,000,** FEDERAL BLDG., CORNERBROOK, NEWFOUNDLAND. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Oct. 3, awarded Nov. 3. CD 10/20, under LB.

▲ **Foster Wheeler Ltd.,** St. Catherines, Ont., CA, Total est. $25,000,000-$30,000,000. UTILITY PLANT and processing equip., DARTMOUTH, N. S. Imperial Oil Ltd., 56 Church St., Toronto, Ont. Bids Oct. 25. CD 8/11.

Glenayre Constr. Co. Ltd., Don Mills, P. O., Ont., Owner Builds. **$550,000,** 10 APARTMENT BLOCKS, Donway East near Birchbark Rd., North York, TORONTO, ONT. Mendelow & Keywan, 1398 Eglinton Ave. W., Toronto, Ont., archts.

(Proposal Advertisements see pp. 161 to 163)

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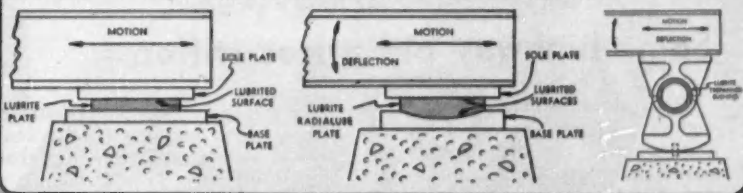

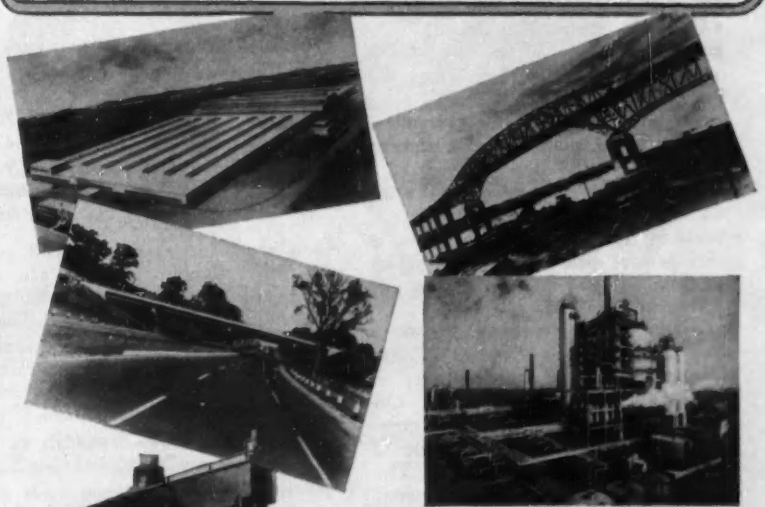

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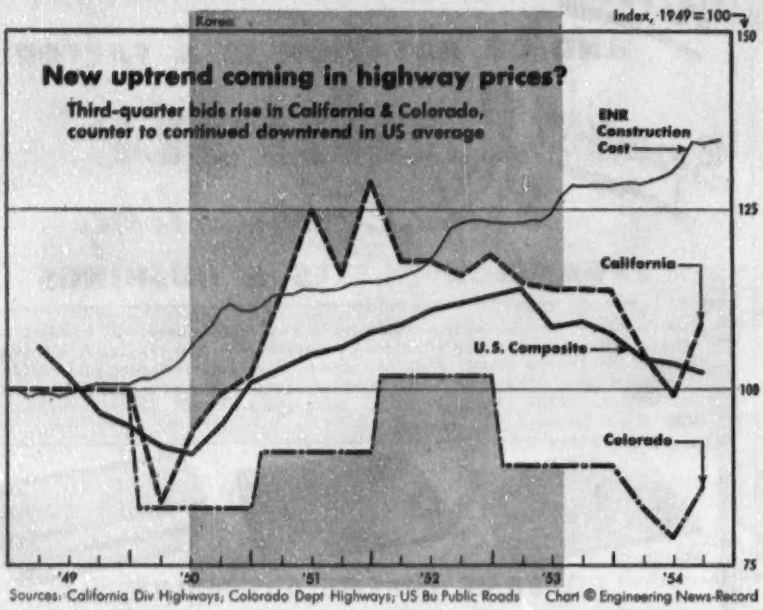
Supplement to 1954 Construction Cost Issue



Sources: California Div Highways; Colorado Dept Highways; US Bu Public Roads Chart © Engineering News-Record

Some highway bid prices stiffen

A sharp upturn marks the first state highway bid price indexes in for the third quarter, but the national composite mile price index continues its downtrend.

• Colorado reported first with a 9 percent increase over the low second quarter bid prices. This brings the index to 86 based on the 1949 composite mile as 100. But even after this sharp rise, prices are 15.5 percent under their 1952 peak.

• California reports a 9.9 percent price rise over the second quarter to 207.8, based on 1940 as 100. This, too, is 15.5 percent below the peak for this index which was reached in the 4th quarter of 1951.

• In contrast, the national composite mile bid price index dropped another 1.9 percent in the third quarter to 149.2 on a 1925-29 base of 100. On a 1940 base this index is 208.4 compared with the 207.8 index value in California on the same base. The BPR price index is now 10 percent below its peak which was reached in the first quarter of 1953.

The new values of the composite mile sub-indexes are: common excavation, $0.36/cy, sub index 101.4 (1925-29 as 100); concrete pavement, $3.53/sy, sub index 159.2; reinforcing steel $0.117/lb, structural steel, $0.167/lb, concrete, structural, $50.64/cy, sub index 229.9. Composite mile index, 149.2.

These values can be added to the highway price index tables in ENR October 7, 1954 pages 115 and 117. In addition, two more states can be added to the state roundup that is found on page 117, Oklahoma and Michigan:

Yr	Mich	Okla	Yr	Mich	Okla
'40	100	100	'47	157	——
1	118	——	8	166	——
2	138	——	9	153	180.70
3	152	——	'50	154	166.47
4	157	——	1	178	181.96
5	161	——	2	184	192.29
6	161	——	3	183	168.56

• Michigan uses composite cost per mile for its annual price index. The index has varied slightly depending or the type of construction involved. Bids received in 1954 show a slight downtrend. Hilary F. Rye, assistant to H. C. Coons, Deputy Commissioner and Chief Engineer is responsible for watching these trends.

• Oklahoma weights its index with combined quantities for the 1949-53 period for nine items: Cl D exc (incl sprinkl & roll); Bridge conc; Culv conc; Reinf stl; Struct stl; Asph conc pvmt; Portl cem conc pvmt (based on 8-in. uniform sect; other typical sect converted to equiv sy of 8-in. uniform); Stab aggr base (used w asph conc & dbl bit surf crse); Asph oils (incl all asph oil used for asph stab base crse, sgl bit surf crse & dbl bit surf).

Total contract cost for these nine items was computed for the 5-year base period from which the amount of each item per $1,000 highway dollars was computed. This gave the weighting for each of the items which is multiplied by the weighted average unit price for the period covered to derive the price index. This index is computed for each month with 1954 values due at an early date. G. H. Bittle, Chief Engineer, Department of Highways directs this price trend research.

Corrections

• Cost and Price Indexes (page four of folded insert chart, Oct. 7 Cost Issue)—Arrow indicating Fruin-Colnon Building Cost Index should extend to broken line immediately below ENR Construction Cost Index trend line.

• Eight-story parking unit costs (page 195)—Cost per sq ft should be $7.33 instead of $0.73 per sf.

• Wall construction costs and prices roundup (table, page 213)—Prices of H. H. Robertson Co. "Q" and "G"-type wall panels include erection costs; are not fob plant prices.

Cost of cip 8 in. concrete wall is estimated by Seelye Stevenson Value & Knecht.

• Construction wages around the world (table, page 133)—In Europe section, wages for Athens, Greece are in thousands of Drachmae per day. Corrected section for Central and South America is:

Central and South America

CITY	Exch. rate June '54 per $1 US	Common Labor: Heavy constr. 6/54	Heavy constr. 6/53	Building 6/54	Building 6/53	Bricklayers 6/54	Bricklayers 6/53	Carpenters 6/54	Carpenters 6/53	Structural ironworkers 6/54	Structural ironworkers 6/53
Bogota, Colombia [a,d]	2.50 Pesos	0.90	0.97	0.71	0.79	0.71	0.97	0.90	1.12	1.26	1.28
Buenos Aires, Arg. [a,b]	14.00 Pesos	41.00	35.47	41.00	35.47	51.00	44.55	51.00	44.55	.....	.....
Caracas, Venez. [a,m]	3.35 Bs.	11.70	11.70	11.85	11.85	25.70[B]	24.50	25.70[A]	24.50	25.70[B]	24.50
Ciudad Trujillo, Dom. R. [a]	1.00 Rd.	1.50	1.50	1.50	1.50	4.50[F]	4.50[F]	4.50[F,C]	4.50[F,C]	6.00[D]	6.00[D]
Havana, Cuba [a]	$1.00	0.62	0.62	0.51	0.51	0.82	0.82	0.82	0.82	0.82	0.82
La Paz, Bolivia [a]	190.00 Bs.	.....	.....	43.00	34.00	60.00	40.00	80.00	50.00	85.00	55.00
Lima, Peru [a,e]	19.90 Soles[G]	28.00	18.22	23.90	18.22	39.98	26.39	39.98	26.39	45.45	30.00
Mexico City, Mex. [a]	12.50 Pesos[GG]	1.10	0.84	1.10	0.84	2.48	1.88	2.48	1.88	1.24[C]	1.13[C]
Sao Paulo, Brazil [a,h]	20.00 Cr.	9.00	8.00	7.00	6.00	15.00	12.00	15.00[B]	12.00[B]	16.00[B]	12.00

[a] 8-hr day [b] plus 80% for insurance and other social charges [c] workers paid 7 days, work 6; rates include adjustment for extra day's pay; 15 days per yr vacation [d] incl 44% mark-up for social insurance, etc [e] per day [f] master tradesmen generally paid $30-$50 per mo; mason laying brick wall can get $50 per mo [g] incl social ins., unemployment tax, indemnity reserve, vacation, other direct taxes pd by contractor [h] 1st class; rate for 2nd class: 6/54, 2.20; 6/53, 1.58 [i] remshadores, 1st-2nd floors; rate increases 40% for each addit floor
Ranges [A] 21.50-25.70 [B] 23.30-25.70 [C] 3.50-4.50 [D] 5.00-6.00 [E] 13-15 [F] 14-16 [GG] 6/53 rate was 8.85 pesos/$1 U.S. [G] 6/53 rate was 16.30 Soles/$1 U.S

10" hydraulic dredge operating in Florida for the Indian River Mosquito Control District—installed Sept. 1954

12" hydraulic dredge owned by San Diego Gas & Electric Co.—installed February 1954

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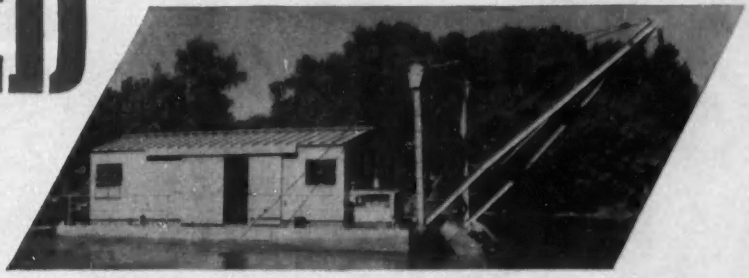
8" hydraulic dredge removing silt for the Salt River Valley Water Users' Association—installed June 1954



8" hydraulic dredge excavating gravel in Illinois for Rock River Ready Mix Co.—installed April 1954

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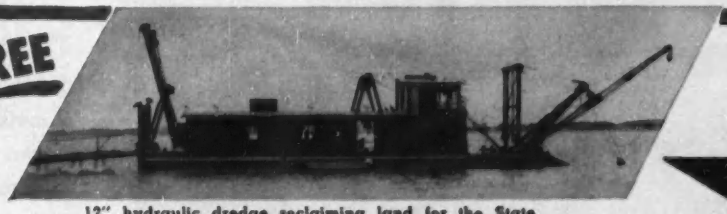

12" hydraulic dredge reclaiming land for the State of Ohio on Lake St. Marys—installed June 1954

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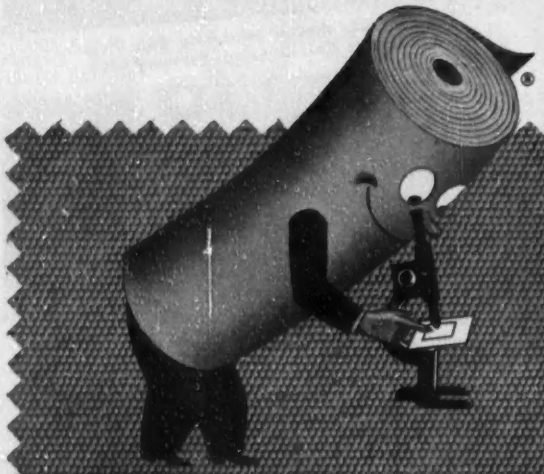

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UNIT PRICES

Nevada highway job

Silver State Construction Co. of Fallon, Nev., will build 6.77 mi of Nevada's state highway system in Pershing County for $280,291. Contract price is $19,000 which is 6% under second bid. Six contractors tried for the job.

A 40-ft roadbed including 8-ft shoulders will be surfaced with asphaltic plantmix. Also part of the contract is a reinforced concrete bridge.

Largest dollar difference between the low bidders occurred on the borrow item. The successful contractor's price of 20 cents per cu yd against second bidder's 28 cents makes a $5,165 difference.

Construction started Nov. 10, can run 200 working days.

Skilled labor in the area receives a minimum of $2.00 per hour, semi-skilled $1.85, common $1.80. Available transportation facilities, besides highway, include railhead adjacent to the project site. No materials are furnished by the owner.

Bidders include:

1C	Silver State Constr. Co., Fallon, Nev.	$280,291
2	Dodge Constr. Inc., Fallon, Nev.	299,363
6	Isbell Constr. Co., Reno, Nev.	330,822

Bids: 10-21-54 Item	Unit	Quantity	Unit Prices 1 C	2
Signs	ls	1	$500.00	$1,000
Sel detour surfacing	cy	310	0.80	1.00
Asph, liq, MC-2, detour & patching	ton	20	35.00	37.50
Roadmix detour	sy	1,190	0.20	0.20
Bit premix patch matl	ton	220	3.00	2.50
Flagman	hr	3,500	2.00	2.25
Pilot car	hr	240	3.00	3.75
Rem trees	ea	37	40.00	50.00
fence	lf	3,500	0.05	0.10
concrete	cy	15	10.00	25.00
culvert pipe	lf	1,012	1.00	1.50
headwall	ea	13	10.00	20.00
superstructure	ls	1	1,000	2,000
Exc, roadway	cy	9,330	0.30	0.28
drainage	cy	80	1.00	0.50
structure	cy	360	2.00	1.50
V-type ditches	sta	15	5.00	5.00
Borrow	cy	64,560	0.20	0.28
Overhaul, yd sta	stay	332,290	0.02	0.015
yd mi	miy	66,520	0.10	0.15
Backfill	cy	940	1.00	1.00
Water	Mgal	5,903	1.00	1.25
Furn water equip	ls	1	2,000	1,500
Power roller	hr	385	5.00	6.00
Tamp, pneum-tire roller	ft-hr	5,374	0.40	0.50
Grav base ty 2, 1"	ton	65,240	0.80	0.02
Asph liq MC-1, prime	ton	270	35.00	37.50
emuls RS-2, seal	ton	158	40.00	35.00
cmt 120-150 pntr	ton	1,205	27.00	28.00
Sand blotter	ton	451	2.00	1.00
Screenings, ½"	ton	1,191	3.00	3.00
Plantmix surface cl F2	ton	22,950	2.00	2.15
Concrete cl AA	cy	466	70.00	70.00
Steel, reinf	lf	55,610	0.12	0.13
struct rail ty B	lf	275.3	8.00	7.50
structural	lb	231	0.30	0.50
CMP, dipped, 12"	lf	126	2.50	3.00
18"	lf	20	3.50	4.00
24"	lf	442	5.00	5.50
48"	lf	106	14.00	14.50
60"	lf	216	25.00	25.00
arch 22x13"	lf	58	4.50	4.50
29x18"	lf	122	8.00	8.00
58x36"	lf	32	18.00	19.00
Relay culvert pipe	lf	394	1.00	2.00
Guard rail, beam ty A	lf	100	3.00	4.00
remove	lf	156	1.00	1.00
Culv markers & gd posts	ea	296	6.00	6.00
Fence, construct	lf	3,140	0.40	0.35
reconstruct	lf	2,160	0.30	0.25
Metal gates 16'	ea	2	50.00	100.00
12'	ea	1	50.00	100.00
Reference monuments	ea	44	10.00	7.50
Steel shell, piles	lf	1,644	4.00	4.20
drive	ea	36	100.00	100.00
Load test	ea	2	$750.00	$500.00
Force acct, maintain base	ls	1	3,000	3,000
misc work	ls	1	1,000	1,000

Texas sewer bids are very close

Eight bids were received by the City of Houston, Texas, for a trunk sanitary sewer. Russ Mitchell Inc. of Houston bid low at $137,747, just 0.2% under second, 1.4% under third.

The project includes 2,445 ft of monolithic reinforced concrete pipe; 11,240 ft of 8, 10, and 12-in. concrete pipe; and there will be 580 ft of cast iron pipe. Completion time is to be 120 working days.

On the four monolithic pipe items, Russ Mitchell Inc. bid $8,000 and 13% above second. But because Mitchell company's prices were lower on 33 of 51 items, their total bid fell $331 under second.

Bidders include:

1C	Russ Mitchell Inc., Houston, Tex.	$137,747
2	Lee & Mcknight Constr. Co., Houston, Tex.	138,079
8	George Consolidated Co., Houston, Tex.	175,295

Bids: 9-22-54 Item	Unit	Quantity	Unit Prices 1 C	2
Exc, extra, manual	cy	5	$1.50	$3.00
machine	cy	5	1.00	2.50
special	cy	30	5.00	3.00
Sel bkfl (1½ sack cmt stabil, sand)	cy	20	6.00	7.00
MH, sanitary	ea	37	150.00	160.00
ty 2	ea	5	120.00	150.00
extra depth, walls 8"	lf	90	12.00	15.00
12"	lf	20	17.00	18.00
drop, san sew w P 8"	ea	2	30.00	35.00
10"	ea	1	32.50	35.00
12"	ea	1	44.00	40.00
ex dpth drop wP10"	lf	5	4.00	45.00
P12"	lf	2	4.50	45.00
Conc, extra, no formwk, A	cy	2	20.00	25.00
C	cy	2	19.00	20.00
Unskilled labor, extra	man-hr	100	1.70	1.50
Reinf stl, extra	lb	500	0.11	0.12
Timb, left in trenches	Mfbm	130	44.00	45.00
Brickmasonry, extra	cy	1	35.00	30.00
Rem conc base pvmt	sy	20	1.50	4.00
misc conc & mary	cy	1	17.00	20.00
Conc pvmt base 10"	sy	20	8.00	4.00
Hot AC surf mix 2"	sy	650	1.10	2.50
Cmt stabil shell base	ton	350	4.50	5.00
Road, shell	cy	25	3.25	2.50
gravel	cy	200	6.00	6.50
6" wye on sew 8"	ea	35	2.65	2.50
10"	ea	10	3.65	2.75
6" stack on sew 8"	ea	2	31.00	30.00
10"	ea	30	31.50	40.00
12"	ea	12	38.50	40.00
48"	ea	8	44.50	30.00
extra height	lf	90	3.75	5.00
Sand stabil shell, trnch bottom	ton	100	3.60	4.00
Sewer pipe				
extra, 6"	lf	20	1.00	1.20
8"	lf	20	1.25	1.40
Monolithic RC at 10-18'	lf	180	28.00	24.00
18-20'	lf	1,075	30.60	27.00
20-22'	lf	200	32.00	29.00
22-24'	lf	990	34.05	30.00
12" RC (ASTM C75) 8-10'	lf	300	3.55	4.20
10-12'	lf	1,620	3.90	4.30
10" conc at 6-8'	lf	225	2.45	2.20
8-10'	lf	2,435	2.60	2.40
10-12'	lf	2,630	2.90	2.60
12-14'	lf	950	3.30	4.20
8" conc at 6-8'	lf	880	2.15	1.80
8-10'	lf	1,575	2.30	2.10
10-12'	lf	225	2.60	2.60
CIP at pvmt & RR crossing				
8"	lf	280	12.00	15.00
10"	lf	210	14.00	20.00
12"	lf	90	16.00	20.00

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Split longitudinally on a horizontal plane, perpendicular to the axis of the outlet, this new "hot tapping" reinforcement eliminates welds in the critical crotch area. Its installation requires a minimum amount of field welding. When used with high yield strength pipe, no welds are required between saddle and line pipe.

The TUBE-TURN Full-Encirclement Saddle is designed for high yield strength thin-wall pipe and for heavy wall cylinders used for headers, bottles and pulsation dampeners. It can be supplied for pipe sizes through 42", any outlet size, in composition and wall thickness to match service conditions.

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For Many, Profit Margins Are Improving

	First nine months Sales (in thousands)		First nine months Profits (in thousands)		Profit margin	
	1954	1953	1954	1953	1954	1953
Air Conditioning & Heating						
Amer. Radiator	$222,437	$222,196	$12,273	$10,336	5.52	4.65
Holland Furnace ...	26,248	25,585	513	376	1.95	1.47
Minn.-Honeywell ...	165,658	154,349	10,580	7,511	6.39	4.87
Trane	36,890	33,117	2,482	1,458	6.73	4.40
Cement						
Gen. Portland	24,819	23,248	5,108	4,318	20.58	18.57
Lehigh Portland	43,848	44,432	5,471	4,599	12.48	10.35
Lone Star	63,478	59,371	9,438	6,646	14.87	11.19
Penn-Dixie	22,938	21,298	3,770	2,561	16.44	12.02
Construction						
Arundel	12,896	13,705	470	995	3.64	7.26
Blaw-Knox	82,373	91,494	3,141	3,057	3.81	3.34
Merritt-Chapman ...	97,441	76,018	2,104	2,821	2.15	3.71
Equipment						
Allis-Chalmers	376,565	391,144	19,323	15,150	5.13	3.87
Bucyrus-Erie	52,725	64,320	3,704	3,999	7.03	6.22
Caterpillar	297,570	342,124	19,583	16,975	6.58	4.96
Marion Pwr. Shl....	14,959	21,337	521	973	3.48	4.56
Thew	17,415	33,841	241	1,342	1.38	3.97
Wallboard & Roofing						
Flintkote	74,323	72,275	3,822	3,943	5.14	5.46
Johns-Manville	184,613	188,832	12,712	15,850	6.89	8.39
Nat'l Gypsum	93,543	87,787	9,491	5,991	10.15	6.82
U. S. Gypsum.....	162,481	146,381	24,158	15,329	14.87	10.47
Miscellaneous						
Crane	218,398	232,399	3,917	6,776	1.79	2.92
Otis Elev.	79,089	72,889	6,689	6,180	8.46	8.48
Pitts. Pl. Glass.....	309,278	346,994	27,530	30,712	8.90	8.85
Weyerhaeuser	191,769	210,879	23,767	27,894	12.39	13.23

Suppliers Outpace Contractors

It looks as if 1954 is going to be a good year, profit-wise, for most companies in the construction materials and equipment industries. But judging by the reports of those few contracting firms who have reported for the nine-month period—along with widespread evidence of tight competition—this will not be a very profitable year for contractors.

That's the story you can read in the table (above). Profit margins (defined in this case as the percentage of sales that appears as net income) have definitely improved for most companies. Nearly all the companies that supply materials have increased their sales and net income. The gain in sales is due to the continuing construction boom. In most cases, profits have climbed faster than sales, percentage-wise. This indicates: (1) greater operating efficiency, (2) relief from the excess-profits tax, for those companies that paid it in 1953.

• **Spottier showing**—The picture is spottier among makers of construction equipment. For most, sales are down in spite of this year's construction boom. This is no surprise, ENR previously has reported the sharp first-half decline in sales of excavating and earth-moving equipment, along with the recovery in the third quarter (ENR Sept. 2, p. 115). For some, profits have dropped even faster than sales, which is another way of saying that profit margins are down. This last statement applies to companies with restricted lines, not the more diversified manufacturers.

Not enough contracting firms are in the list to draw any conclusions. Blaw-Knox—a manufacturer as well as a contractor—paid a hefty excess-profits tax in 1953. But there is plenty of outside evidence to suggest that contractors will have rough going this year to maintain profit margins, which are already low by comparison with supplier companies.

Bullish Bond Market

It's eager for well-secured construction bond issues

The municipal bond market, which has absorbed huge volumes of construction financing this year, is still eager for more. Last week, the Maryland State Roads Commission sold a $180-million offering of bridge and tunnel bonds at a net interest of 2.99%. The 40-year term bonds which made up $144 million of the issue were priced by the underwriters to yield 2.95% on resale. They were soon selling above issue price, indicating strong demand. The rest of the bonds were serial maturities ranging from 1960 to 1974. Underwriters reported that these were oversubscribed.

The issue has a double purpose: (1) to finance the $130-million Patapsco Tunnel in Baltimore, with its approaches, and (2) to refund about $34 million of bonds still outstanding on three bridges already operated by the Roads Commission. Two of these bridges—the Potomac River and Susquehanna River Bridges, both opened in 1940—are considered already to have paid for themselves. The Chesapeake Bay Bridge, opened in 1952, also is proving to be a financial success.

Revenues of all three bridges will be pooled with those of the Patapsco Tunnel to provide security for the issue.

To prevent objections from Maryland drivers, the Roads Commission several months ago cut tolls drastically for Maryland cars which use the bridges often.

The success of this issue shows the bond market is still ready and willing to finance plenty of construction. Recent large revenue issues—for instance the Virginia Highway and Kansas Turnpike bonds, both large issues—are selling at favorable prices.

(*Continued on page 152*)

(*Continued from page 151*)

• **The sacred 3%**—This strong tone has not been true of all sectors of the bond market. Back in mid-October, an underwriting syndicate headed by Morgan Stanley & Co. bought a $75-million issue of New York Telephone Co. 35-year 3s, and re-offered them to yield 2.95%. Up till last week, $70 million of these bonds remained unsold. So the syndicate broke up, allowing the price of the bonds to sink to its market level. They dropped to a point where the yield to the buyer was around 3%.

Most Wall Street observers agree that the reason the Telephone bonds failed to sell was that institutional investors are convinced they should get at least 3% yield on long-term corporate securities.

The Maryland long-term bonds were priced to yield only 2.95%, and they were for 40 years instead of 35. But the big difference is that the Maryland bonds are exempt from federal income tax and from taxation by Maryland or local governments in that state. They might have sold at a lower interest cost, were it not for the fact that many of the institutional investors who buy these bonds—life insurance companies and pension funds—are more or less exempt from federal income tax.

Still another advantage which the Maryland bonds have over corporate issues is this: As is customary with government toll projects, the State Roads Commission does not have to pay taxes on any of these properties.

Thruway Undermines Tax, New York Officials Learn

The New York Thruway is starting to make things tough for the state's weight-distance tax on trucks.

Truck traffic on the Thruway is exempt from the state weight-distance tax. The result is that, as truck traffic develops on the toll road, the tax is becoming increasingly expensive to administer. By the time the Thruway is completely open and has been running awhile, it may well cut truck tax revenue down to $6 million or $7 million a year by diverting about half the state's truck traffic from free roads.

In the last fiscal year the tax produced about $14 million. It's estimated to produce about $13 million in the 1953-1954 fiscal year. Right now, it costs the state about 10 cents to collect every dollar of truck tax, about as high as any tax official wants to go. These expenses are not expected to get much lower, that means the truck tax is rapidly becoming obsolete.

Plans for International Financing Concern the Construction Industry

Private lenders may aid Ex-Im Bank's export program; Administration decides to back plan for world loans

Two moves in the field of International Finance made news for construction men and construction manufacturers this week.

• A plan to provide private intermediate-term financing for exporters of capital goods was reported under very serious discussion between the Chase National Bank, New York, and the Export-Import Bank, a government agency. The idea is to set up a private company to buy loans guaranteed by the Ex-Im Bank.

• Reversing its previous policy, the Administration announced it would seek congressional approval to have the U. S. join a proposed new organization, the International Finance Corp. Using $100 million to be provided by member nations of the World Bank, IFC would put up capital for industries in underdeveloped countries, and resell securities to private investors. Obviously, if this plan will work out it could lead to a lot of construction.

The "Chase Bank Plan" would supplement the program already announced by the Export-Import Bank providing credit for from one to five years for exporters of capital goods (ENR Aug. 19, p. 151). Ex-Im has just granted Combustion Engineering, Inc., of New York, a $6-million credit line for export of steam boilers. A $4-million line goes to Oliver Corp., of Peoria, Ill. for export of agricultural machinery. About a dozen other applications are close to completion, including several makers of construction equipment.

• **Ex-Im plan**—Under this arrangement, the exporter gets a down payment of 20% of the contract price and finances another 20% himself. If the government bank agrees, the exporter can accept a lower down payment, and finance a higher proportion. Ex-Im gives an "all-risk" guarantee to the remaining 60%. The exporter could quite possibly sell this guaranteed loan to his own bank. But Ex-Im could make the loan direct and resell the paper to private investors. At this point a private company such as the one reportedly being considered by Chase would enter the picture.

The private company idea is still highly tentative. Chase isn't even saying anything about it officially. If the idea works out, presumably other lending institutions also would join the enterprise.

• **IFC plan**—The International Finance Corp. is much further away from completion, and may never get started at all. Up till now, the Eisenhower Administration has opposed the project. And Congress must approve. The next big obstacle is to get member nations of the World Bank to put up the capital. The U. S. is slated for $35 million, and other nations will be asked to put up capital in proportion. If 30 of the 57 member nations agree to put up the funds, or if $75 million of the $100-million capital fund is subscribed, the plan would go into effect. Under the best of conditions, it isn't likely that any such plan could go into operation for at least a year.

At least one powerful member nation, Great Britain, is said to be opposed to the idea. The British have a similar setup of their own.

Actually, this money would be a drop in the bucket toward meeting the needs of underdeveloped countries around the world for capital to develop industry. But the idea is to create a favorable atmosphere for flow of outside money into such enterprises. Private investors, it is hoped, would follow IFC's lead by buying its securities and thus increasing its capital, and by making foreign loans of their own.

Flint Financier Backs Company To Pipe and Purify Erie Water

A Flint, Mich., financier has been identified as the "money man" behind a proposal to develop a privately operated water utility in Lake County, which adjoins Greater Cleveland.

Charles Stewart Mott, a large share holder in General Motors Corp., is backing the recently formed Lake Erie Water Co. The company proposes to pipe water from the lake, purify it, and sell it to area users, including a growing industrial community.

An attorney representing Mott told county officials that the company is ready to begin work on the project that would provide lake water to county and municipal systems. Mention was made of future pipelines to Akron and Youngstown.

October Starts Hit New Record, Point to 1.2 Million This Year

October house starts set a new record for the month of 106,000, the federal government reported this week. This brings the total for the first 10 months to slightly over 1 million, 6% over the same 1953 period. The total for 1954 should be close to 1.2 million, and predictions are being made that the boom will last well into 1955.

One reason why this seems to be a certainty: The flood of applications for FHA insurance that is now rolling in as a result of the liberalized terms set by the new Housing Act. Applications hit a new monthly high for October, as they did in August and September.

Business Briefs . . .

• **$200-million power project** is planned in the Pacific Northwest by a combine of four utilities, called Pacific Northwest Power Co. The group has asked the Federal Power Commission to grant preliminary permits for two sites on the Snake River in Idaho and Oregon, which would develop 850,000 kw. The companies: Portland General Electric Co., Pacific Power & Light Co., Washington Water Power Co., Montana Power Co.

• **U. S. Gypsum Co.** of Chicago, plans to spend about $25 million in expanding production capacity to meet the growth in demand. Part will go for a new gypsum plant in the newly discovered Indiana gypsum fields.

• **Contract construction employment** continued to decline in October, due at least partly to seasonal factors. The Bureau of Labor Statistics estimate for October is 2,764,000, 1.6% below September and 4.3% below the record October 1953 total. Most of the drop in recent months below last year is in general building contractors.

• **Cement expansion**—Lone Star Cement Co. is spending about $14 million for remodeling and enlarging three cement plants in Pennsylvania, Indiana, and Kansas. The program will add 1¾ billion bbl. to Lone Star's annual capacity of 34 million bbl.

• **Butane and propane pipeline** is planned from Tioga, N. D. to Winnipeg and other cities in Canada. Cost will be about $20 million. The Canadian section will be built by Winnipeg & Central Gas Co.; the U. S. part by Deep Rock Gas Co.

(*B&F continued on page 154*)

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THE LONGER LOOK:

The housing boom seems set to continue well into 1955. Many factors are responsible for keeping it rolling along

It now looks certain that homebuilders will start close to 1.2 million homes in 1954—a pretty good showing for a year that got off to an unpromising start. What's more, the McGraw-Hill Economics Department expects the renewed boom to continue well into 1955. Many early forecasts are setting 1.2 million starts as a minimum for next year. The strength of new starts going into the winter season indicates that such prophecies may not be far wrong.

This upturn has been surprising because a year ago, and even in the first half of 1954, all signs pointed toward a moderate slump in homebuilding. Housing starts were down. Household formations had fallen to a net annual increase of less than a million, from a rate of nearly 1.5 million in the late 1940s. And, more important still, personal income—the means to buy housing—was dropping.

This surprisingly healthy showing has been responsible for bolstering demand for building materials and for other construction—sewerage, roads, schools, and stores. Demand in all these fields promises to be strong.

• **Where's the demand coming from?—A surprisingly large number of new households is still being formed each year.** Though the marriage rate (per 1,000 population) has fallen to the lowest figure in a quarter of a century, the basic unit of housing demand is the household. This includes not only families but any person or group occupying a dwelling unit.

Between 1950 and 1953, almost as much of the increase in households came from "primary individuals" living alone as from families headed by husband and wife. And such nonfamily households are still being formed in large numbers. Bachelors and career girls are maintaining their own apartments. Older people, especially widows, can now keep their own homes because of Social Security and industrial pensions. In both instances, business prosperity is permitting more people to be independent.

We still have a high birth rate, a declining death rate, and a great deal of migration. Many young families are becoming crowded in the new homes they bought after the war. They need bigger houses. On the other hand, the spectacular increase in longevity in recent years has increased the demand for small units suitable for older people. Longevity has also reduced—perhaps by half—the number of households that would have been dissolved by death since the 1920s. Migration of great numbers of people to the suburbs and to sunnier regions also has had a major impact on housing demand.

It's easier now than it has been for years to get the money to buy a home. There has been a revolution in home financing. Low interest rates, the amortized mortgages, low (or no) down payments, and FHA insurance for the lender have made it possible for almost anyone with a steady job to buy a home. Except for the postwar GI benefits, the new housing act offers the most liberal terms yet.

Builders are making new houses and apartments more attractive, at prices that draw a wide market. They have catered to a desire for more convenient kitchens, more and bigger closets, better room arrangements. In the last two years, these have been added without much addition to prices. More efficient construction methods have held down costs. Compared with prewar, prices are high; but homebuilders are giving far more house for the money than they did a few years ago.

• **What's ahead?**—In the 1960s, the coming of age of the huge baby crop of the 1940s will result in a new burst of family formations that may push demand for new housing units above 1.5 million per year. But meanwhile, even with good economic conditions, there will be several years when net new household formations may run less than 900,000 a year. This could still sustain demand for 1 million or 1.1 million new units a year (allowing for 200,000 or so demolitions of old units).

However, there are a few questions that ought to be asked.

How will people react to the end of inflation? For years, people have been accustomed to buying a house and selling it later at a profit. Now, with pressure off the housing market in most areas, people may well have to sell a recently purchased house for less than they paid for it. Where equities in houses are thin, that could block shifts from small houses to larger ones. Also, it could discourage new buyers who have been accustomed to think of homes as sure-fire investments.

Will we have cause to regret the easy financing of houses? Today's attractive terms undoubtedly are creating home owners who would not be able to keep up payments and operating expenses in even a moderate economic slump. They might be compelled to double up with relatives. Of course, this could have a serious effect on the housing market. There is the additional possibility that the recent loosening of terms is raising current demand—by inducing young couples to advance buying plans—at the expense of demand which normally would have occurred two or three years from now.

Will we continue to benefit from rising incomes and bigger families? The great increase of consumer units in the $4,000-$7,500 income bracket and the revival in popularity of larger families have been responsible for the sustained postwar demand for larger and more expensive houses. Both of these trends have been closely related to the rapid and consistent growth in our economy since World War II. Even if there is no significant business slump, a mere failure to maintain the recent growth rate might reduce this major sector of demand.

• **What's the future of prefabricated homes?** Along with the monorail and the personal helicopter, prefabricated housing has long been one of our most advertised but least evident growth products. In recent years, however, prefabs have been making some headway. Last year, they accounted for about 5% of total housing starts. If prefabrication really catches hold, the availability of high-quality homes at much lower prices may work new wonders in the housing market even before the heralded marriage boom of the 1960s. If it doesn't catch hold, the mass market may be harder to sustain.

• **But the boom goes on**—These questions are not raised to indicate doubt that the housing boom will not last well into 1955. They are merely questions that must be considered in wondering just how much longer it can last. They have, in fact, been raised periodically for several years now, and they have led to discouraging forecasts. But each time home buyers and homebuilders—and a government that encourages both—have found new ways to keep the boom rolling. It looks as if they are doing it once again.

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Construction men report on equipment using Cities Service gasolene, oils, greases!

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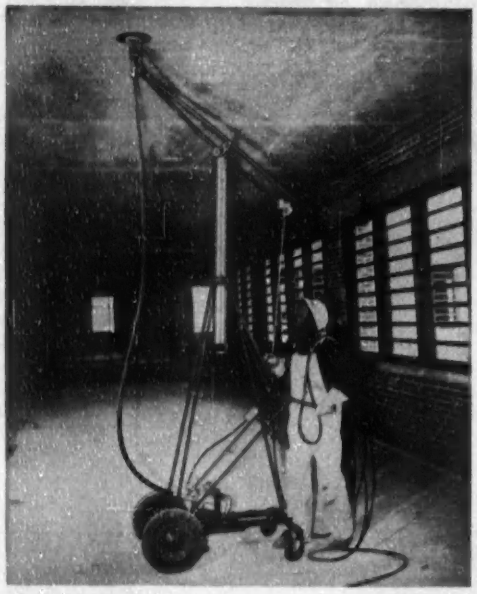

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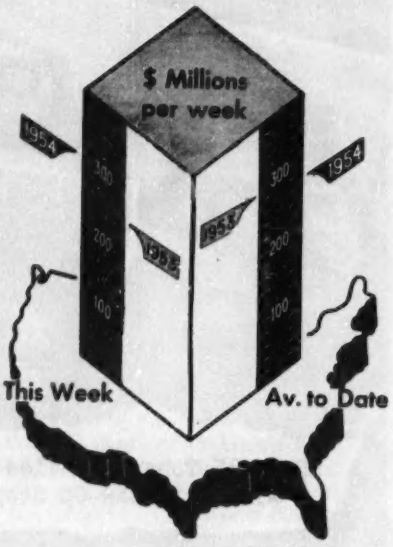
Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 46 wks 1954	Cumulative 46 wks 1953	% chge
Federal	$40.7	$1,158.0	$1,298.2	−11
State and municipal	78.6	4,424.7	4,431.4	−0.2
Total public	119.3	5,582.7	5,729.6	−3
Total private	182.5	7,201.7	7,540.6	−4
U. S. total	$301.8	$12,784.4	$13,270.2	−4

Contracts by type of work

Waterworks	$5.2	$217.3	$208.6	+4
Sewerage	2.9	351.5	387.0	−9
Bridges	2.8	452.6	610.4	−26
Highways	37.7	1,704.8	1,591.8	+7
Earthwork, waterways	5.2	283.9	331.0	−14
Buildings:				
Public, excl. hsg.	47.3	1,563.3	1,510.5	+3
Housg., public	1.5	233.5	355.0	−34
Housg., private	112.1	3,809.6	3,147.6	+21
Commercial	59.7	1,244.7	1,037.5	+20
Industrial	8.2	1,626.0	2,530.2	−36
Unclassified	19.2	1,297.2	1,560.6	−17
Total	$301.8	$12,784.4	$13,270.2	−4

NOTE: Minimum size projects included are: Waterworks and waterways, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

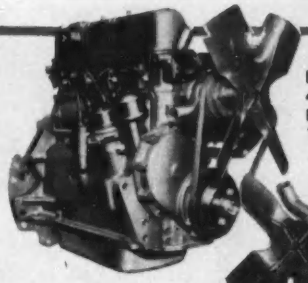
(millions of dollars)

	Week of Nov. 11 1954	Cumulative 45 Wks 1954	% chge '53-'54
Corporate securities	$10.5	$2,474.0	−34
State and municipal:			
All except housing	22.3	4,739.6	+27
Housing	...	91.0	−65
Federal loans	0.2	104.9	+1
Federal aid	...	673.0	−13
Total non-federal	$33.0	$8,082.6	−7
Federal appropriations:			
In U. S.	...	$2,073.3	+32
Outside U. S.	...	33.2	+15
Total new capital	$33.0	$10,189.0	−0.5

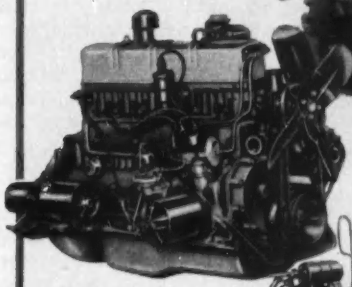
ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	11/11	642.94	309.06	134.78
	10/28†	643.02	309.10	134.80
Building cost	11/11	456.26	246.64	129.70
	10/28†	456.34	246.68	129.72
Volume	Oct.	423	172	122
	Sept.	503	204	145

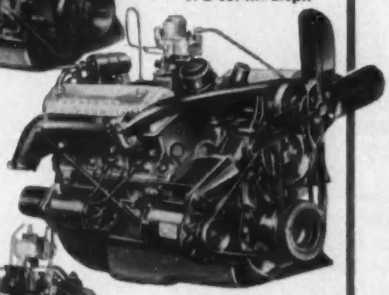
† Official ENR index for Nov.



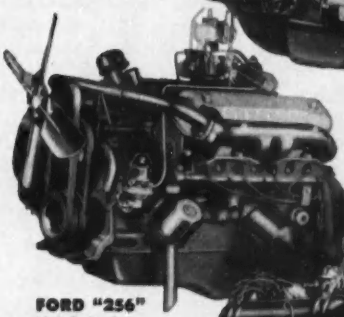
FORD "134"
4-Cylinder
Engine Assembly
134 cu. in. displ.



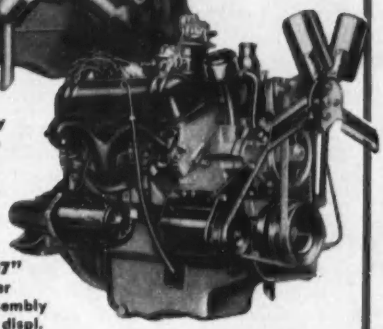
FORD "172"
4-Cylinder
Engine Assembly
172 cu. in. displ.



FORD "223"
6-Cylinder
Engine Assembly
223 cu. in. displ.



FORD "239"
V-8 Cylinder
Engine Assembly
239 cu. in. displ.



FORD "256"
V-8 Cylinder
Engine Assembly
256 cu. in. displ.

FORD "317"
V-8 Cylinder
Engine Assembly
317 cu. in. displ.

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FORD MOTOR COMPANY

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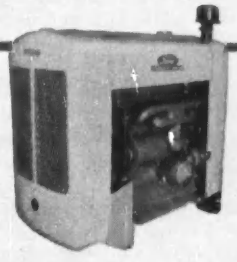

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AND POWER UNITS

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for 6-cyl. and 8-cyl. Engines

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LABOR

Disputes Slow Critical Defense Work

Nike base construction on both coasts held up by union drives for organization, pay adjustments

Labor trouble is slowing construction of U. S. guided missile bases on both sides of the continent. Picketing during an organizational drive in Baltimore is now before the courts, while work continues under a truce. And near Seattle, a similar project is being picketed by the carpenters union.

There is no apparent connection between the two, but the result has been called a serious blow to a program that has "the highest priority of all Army construction," according to the Corps of Engineers. The setback comes on top of the public distrust of the projects that has already hobbled construction of Nike bases (ENR, Sept. 9, p 23).

• **Baltimore genesis**—Center of the Baltimore storm is Dominion Contractors, Inc., an open shop organization holding the prime contract for four of the sixteen $500,000 bases planned to ring the Washington-Baltimore area. Subcontractors—some of them employing nonunion help—are doing all the work for Dominion.

Picketing began late in September in an AFL building trades attempt at organizing the work force. Heading the attack were the Baltimore Building and Construction Trades Council and the laborers, ironworkers and carpenters locals.

• **Legal status** – Claiming that the pickets formed a "human barricade" to workers entering the projects, the government moved in, through the NLRB regional director, sought and won a temporary injunction from a U. S. District Court. Before a hearing could be held on a permanent injunction, a truce was reached, under which the dispute will go before the NLRB examiner and the unions agreed not to "engage in any strikes or picketing at the sites involved."

• **Behind the scenes**—The Nike labor trouble stems from what union leaders call the growing tendency of Baltimore contractors to turn to nonunion labor as a means of cutting mounting labor costs.

Observers figure that it was a good chance, too, for the unions to gird their loins for a fight on a proposed "right-to-work" law.

Already a group has been formed, under leadership of Baltimore contractor Edward P. Colwell, to push such legislation at the January session in Dover. Harry Cohen, president of the Maryland-District of Columbia Federation of Labor, has asked each local to contribute $1,000 to a "war chest" to defeat the enactment of a "right-to-work" law.

• **West Coast**—The issue in the West Coast picketing is highly localized and involves an attempt by the carpenters union to obtain travel time, welfare and other fringe benefits. Target of the picketing is Cisco Construction Co. of Portland which has a contract for a Nike base at Redmond, northeast of Seattle. As in Baltimore, the project is under the direction of the Corps of Engineers and has high priority.

It is interesting to note that Cisco was involved last spring in a strike of 10,000 workers (ENR, May 20, p. 28) at the Atomic Energy Commission's huge Hanford Works near Richland. That dispute was precipitated by the company's employment of nonunion men.

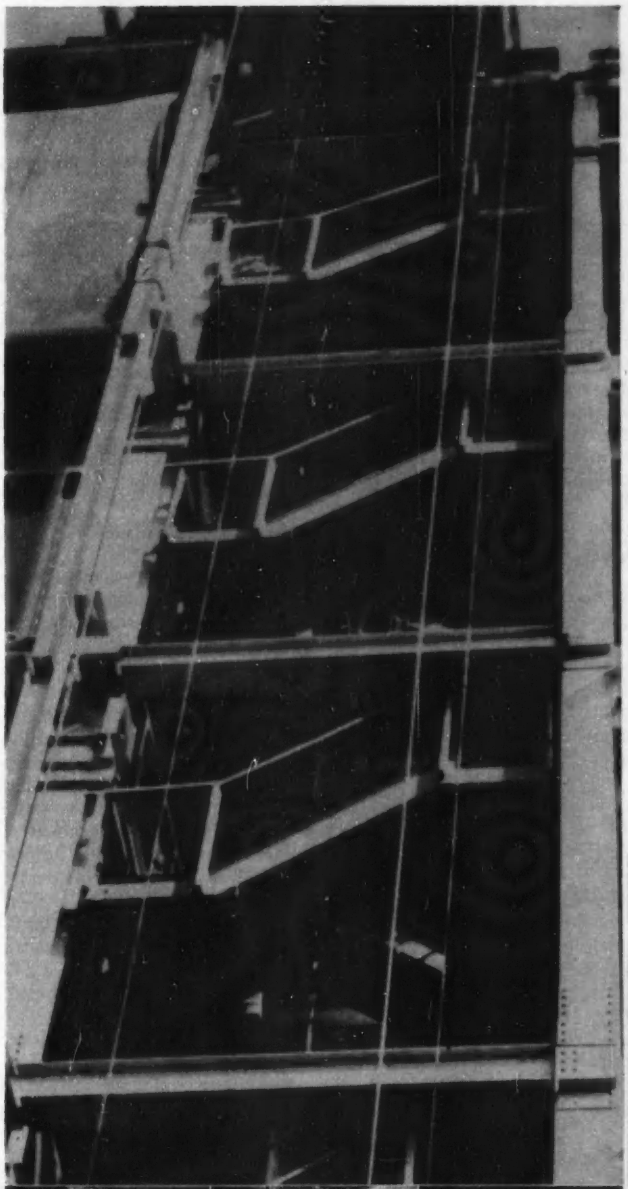
Ads in Union Publications May Backfire on Employers

An employer who buys advertising space in a union publication may find himself in legal hot water—if his operation is unionized and if the publication is put out by the union local or its parent organization.

At least, that's the opinion of Malcolm Wein, Counsel for the Westchester Building Trades Employers Association.

The opinion, Wein said, has its basis in the "domination" provisions of the Labor-Management Relations (Taft-Hartley) Act. Under Sec. 8, it is declared an unfair labor practice for an employer to "contribute financial or other support" to a labor organization. And Sec. 302 makes it unlawful for an employer to "pay . . . any money . . . to any representative of any of his employees," except for certain specified reasons, if the industry is one in interstate commerce. One of the statutory exceptions is the

(*Continued on page 160*)



Stair Specialists

cut costs with

J & L Junior Channels

Michael Pfaff and his sons Bill and Dick are experts on how to get up in the world economically. They build steel stairs with J&L Junior Channels. In fact during 1953 alone, their company, Standard Metal Products, built 456 floors of stairs—five times the height of the Empire State Building.

One of the big reasons for Standard's success is the way Junior Channels help out in production and shipping costs. Mr. Pfaff reports the company saves about 20 percent in shipping weight on the stairs fabricated with lightweight Junior Channels over an equivalent stair built of ordinary channels. In other words, for each ten floors of stairs two floors are shipped free.

Another advantage pointed out by Mr. Pfaff is that the lightweight J&L Channels can be handled faster and easier during fabrication and finishing. J&L Junior Channel stair stringers are strong, lightweight members. 12 inch sections weigh only 10.6 pounds per lineal foot . . . 10 inch sections 6.5 or 8.4 pounds depending on the web thickness required. A standard structural channel of the same height would weigh almost twice as much. Standard Metal Products Company translates this weight-saving feature into a dollar savings because less weight means less fabricating, erecting and material cost.

Finally, J&L Junior Channel stair stringers provide clean, straight lines that give excellent appearance without further finishing and take ornamental trim readily.

Check the many outstanding features of J&L Junior Channels for yourself. Write today for our booklet, "J&L Junior Channels."

Junior Channels Are Readily Available for Prompt Delivery

Jones & Laughlin

STEEL CORPORATION — *Pittsburgh*

Jones & Laughlin Steel Corporation
428 Gateway Center, Pittsburgh, Pa.
Please send me a free copy of your J&L Junior Channel Booklet.

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Kinnear Rolling Doors open upward. They coil *compactly* above the opening. Surrounding floor, wall and ceiling space is *always fully usable.* The interlocking-slat curtain (originated by Kinnear and famous for over 50 years) give *all-steel protection* against fire, storms, rioters. Manual or motor operation. Built to fit any opening. Write for new catalog.

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payment of money in the sale or purchase of an article or commodity at the prevailing market price "in the regular course of business."

Violation is a criminal offense carrying a fine up to $10,000, or imprisonment for a year, or both.

The general purpose of these provisions is to assure to labor its right of self-organization without coercion or interference from the employer. High on the list of forbidden practices are those involving "subtle or conscious economic pressure." Typical of these is letting a union use an office safe, or a club house for union purposes. Even an employer's successful efforts in getting a bank to extend credit to a company union has been held unlawful.

Ohio Trades Get Boosts

A five-cent an hour wage increase became effective this month for 35,000 building tradesmen in Ohio's Cuyahoga County (Cleveland). The wage hike results from a "package" settlement made last spring.

New rates, as announced by the Building Trades Employers Association, are:

Bricklayers — $3.37½; carpenters, lathers, electricians, ironworkers, plasterers, plumbers, roofers, and steamfitters — $3.32½; boilermakers and sheetmetal workers—$3.25; asbestos workers and cement finishers—$3.20; tile setters and terrazzo mechanics —$3.15; glaziers — $3.05; terrazzo grinders—$2.77½; marble setters and terrazzo helpers—$2.62; laborers—$2.57½.

Two of the trades—asbestos workers and cement finishers—are slated for another nickel increase in January.

Mississippi Pickets Stumble Over New Right-to-Work Law

Mississippi's right-to-work law has flexed its muscles and taken a poke at the carpenters union in the Columbus area. The result is a temporary injunction clearing pickets away from two projects, one in Columbus and one at the State College.

Center of the dispute is Building Service Co., of West Point, and a seven-county area in northeast Mississippi.

The company, according to one of its officials, asked the local to supply union carpenters for a roofing job in Columbus. As a condition for supplying these, the union wanted the company to agree to use union carpenters in the seven-county area. But the firm refused to agree to these terms and picketing of the two projects resulted.

This is believed to be the first time the law—which became effective last February—has been invoked in this manner.

Mississippi is one of the 17 states that now have right-to-work laws. Here, as elsewhere, the law was bitterly opposed by the unions. At the recent AFL convention, such laws were branded as "right to scab" laws. One of the union objections is that the law gives "free riders" the right to work in union shops.

Basically, the Mississippi law declares it a matter of public policy that the right to work shall not be denied because of membership or nonmembership in a labor union. Agreements between an employer and a union making union membership a condition of employment are made unlawful. Violation of the law entitles an offended employe to the actual damages sustained by the discrimination.

Labor Briefs . . .

• **Employment dip**—For the first time since February, the number of workers employed in contract construction has dropped below the total for the same month of 1953. According to BLS preliminary estimates, the total dipped to 2,807,000 in September from an August total of 2,840,000. (The total for September 1953 was 2,866,000.) September employment was fourth largest on record and was only 2.2% below the all-time high for the month.

• **Voting time**—An employer in Iowa must pay his employes for time taken off to vote in a general election. That's the gist of a decision handed down by the Iowa Supreme Court in a case involving the John Deere Des Moines Works. In this instance, amount of time taken off to vote was two hours.

• **Right-to-work**—The Wisconsin State Chamber of Commerce wants to see a right-to-work law on Wisconsin's statute books. At the organization's annual meeting in Madison, it adopted a resolution recommending enactment of such a law.

• **Another indictment**—Two New Jersey AFL leaders have been indicted for alleged extortion of $15,000. Accused of the shakedown are the business agent of a laborers local and the chairman of a district council of ironworkers' locals. A Newark federal grand jury said the victims were subcontractors on a 16-in. pipeline between Linden and Jersey City.

OFFICIAL PROPOSALS

Bids: December 6, 1954

Construction of Passenger Station

Construction of a two story passenger station, steel canopy and shelter building, located in the Borough of Dunellen, County of Middlesex, New Jersey, in connection with the Dunellen-Plainfield Grade Crossing Elimination Project, under Order of the Board of Public Utility Commissioners, State of New Jersey

Sealed proposals for the construction of a two story masonry, steel and reinforced concrete passenger station (22'x57'), steel canopy (18'x146'), and shelter building (15'x42'), adjacent to track elevation work now in progress, will be received by The Central Railroad Company of New Jersey, at the office of the Chief Engineer of the Railroad, located at Jersey City Terminal, Room 44, Foot of Johnston Avenue, Jersey City, N. J., until 1:00 PM EST, Monday, December 6, 1954, and then be publicly opened and read.

Proposal forms, drawings, specifications, bond and insurance requirements may be obtained at the office of the Chief Engineer of The Central Railroad Company of New Jersey, at the above address, on or after November 22, 1954. Drawings and specifications may be obtained upon application at the office of the Chief Engineer on a deposit of Twenty-five Dollars ($25.00) per set. A refund in full will be made to bidders upon return of each set in good condition within 30 days of award or rejection of bids.

This work will be awarded as a general contract and the successful bidder will be required to perform with his own organization not less than 80% of the total value of the contract, except for materials or items of work which require specialized knowledge, craftsmanship, or equipment not ordinarily available in a contractor's organization.

Bids must be made upon the standard proposal forms furnished for this purpose by the Railroad Company and must be enclosed in sealed addressed envelopes bearing, on the outside, the name and address of the bidder and the identity of the contract work covered by the bid, and must be accompanied by a certified check drawn to the order of the Treasurer of The Central Railroad Company of New Jersey, in the amount of Ten Thousand Dollars ($10,000.). Bids and checks not enclosed in sealed addressed envelopes will be considered informal and will not be accepted.

The Railroad Company reserves the right to reject any or all proposals.

S. L. Mapes, Chief Engineer,
The Central Railroad Company of New Jersey,
Jersey City Terminal, Jersey City 2, New Jersey.

Bids: December 7, 1954

Contract Ext-130.008 The Port of New York Authority Port Authority Building Fifteenth Floor Alterations

Sealed proposals for performing alterations to a portion of the fifteenth floor of the Port Authority Building will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, December 7, 1954, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 18, 1954

OFFICIAL PROPOSALS

Bids: November 30, 1954

Unit Two: Lift Stations, Interceptors & Force Mains Charleston, W. Va.

CHARLESTON SEWER IMPROVEMENTS.
PROJECT WVA 46-P-4

The Sanitary Board of the City of Charleston, Charleston, West Virginia will receive sealed bids for "Unit Two: Lift Stations, interceptors and Force Mains." until 2 P.M. Eastern Standard Time on the 30th day of November, 1954, at the office of the Sanitary Board, Room 15, City Building, at which time and place all bids will be publicly opened and read aloud.

The successful bidder will be required to furnish a satisfactory performance bond in the amount of 100 per cent of contract.

Liquidated damages for delay will be One Hundred Dollars ($100.00) per day for each calender day beyond the date specified in the contract.

The contract documents, including plans and specifications are on file at the office of the Sanitary Board, City Building, Charleston, West Virginia, and at the office of Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, where they may be examined free of charge.

Experienced Bidders may obtain copies of plans and specifications by depositing Fifty Dollars ($50.00) with Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, for each set of documents so obtained. The amount of the deposit for one (1) set of documents will be refunded to each actual bidder who returns the plans and documents in good condition within five (5) days after the opening of bids.

Material people should contact the office of Settle Engineers, Inc., for information.

The Sanitary Board of The City of Charleston reserves the right to reject any or all bids and to waive any informalities in bidding.

A certified check or cashier's check, payable to The Sanitary Board of The City of Charleston, West Virginia, or a satisfactory bid bond executed by the bidder and a surety company authorized to do business in West Virginia, in an amount of dollars at least equal to five per cent (5%) of the bid or an equal amount of U. S. Government Bonds, shall be submitted with each bid.

No bid may be withdrawn, after the scheduled closing time for receipt of bids, for at least sixty (60) days.

THE SANITARY BOARD OF THE CITY OF CHARLESTON
By: Donald C. Shonk
Secretary

Date: October 27, 1954.

FOUR UNIT PROJECTS
Units 1, 2 and 3 LIFT STATIONS AND ACCESSORIES.
Unit 4: Force Mains

4,550	lineal feet of	42 inch	Cast Iron	Mechanical Joint
130	lineal feet of	24 inch	Cast Iron	Mechanical Joint
1,200	lineal feet of	14 inch	Cast Iron	Mechanical Joint
100	lineal feet of	30 inch	Cast Iron	Molox
80	lineal feet of	14 inch	Cast Iron	Molox

Bids: December 1, 1954

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Standard Time, the 1st day of December 1954, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of structures and the grading, drainage and paving of the Turnpike Section 37-E, part of the Northeastern Extension of the Pennsylvania Turnpike in Bear Creek and Dennison Townships, Luzerne County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 4,795 feet southeast of the centerline of existing L.R. 40041 at Turnpike station 12+00 in Bear Creek Township, Luzerne County; thence in a northwesterly direction 34.944 feet more or less to Turnpike station 361+25 in Bear Creek Township, Luzerne County at a point approximately 2.126 feet southeast

OFFICIAL PROPOSALS

of the centerline of L.R. 933, a distance of approximately 6.62 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation	1,000,769 Cu. Yds.
Class II Excavation	23,465 Cu. Yds.
Class 2A Excavation	910 Cu. Yds.
Special Subgrade	287,567 Sq. Yds.
Reinforced Concrete Pavement	182,849 Sq. Yds.
Class A Concrete	2,195 Cu. Yds.
Class B Concrete	1,081 Cu. Yds.
Plain Steel Bars	381,600 Lbs.
Fabricated Structural Steel	475,900 Lbs.
Median Divider	32,380 Lin. Ft.

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on November 12, 1954. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, for this section exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania

Bids: December 7, 1954

Power Authority of the State of New York

FOR
THE FABRICATION AND ERECTION OF THE SUPERSTRUCTURE FOR
THE BARNHART ISLAND BRIDGE OVER THE ST. LAWRENCE RIVER NEAR MASSENA, ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. 5422-C
ST. LAWRENCE CONTRACT NO. 6

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the fabrication and erection of the superstructure for the Barnhart Island Bridge over the St. Lawrence River, near Massena, St. Lawrence County, New York, until 10:30 A.M., Eastern Standard Time, on the 7th day of December 1954, at 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineers, Prager-Kavanagh, 126 East 38th Street, New York, New York; The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, on or after November 15, 1954, upon application and pre-payment of a fee of Forty Dollars ($40.00) per set, no part of which will be refunded. Extra sets of plans at $20.00 each or specifications at $20.00 each may be obtained by any contractor who purchases a full set.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of the Power Authority of the State of New York for the sum of One Hundred Fifty Thousand Dollars ($150,000.00).

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

OFFICIAL PROPOSALS

Bids: December 21, 1954

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERING
OF CONCRETE AGGREGATES
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11013
ST. LAWRENCE CONTRACT NO. P4

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the production, furnishing, and delivery of concrete aggregates to Massena, New York until 10:30 A.M. Eastern Standard Time on the 21st day of December 1954 at the Authority's Office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items are:
Estimates:
800,000 tons Natural or Manufactured Sand Fine Aggregate
1,700,000 tons Crushed Rock Coarse Aggregate in four grades

Specifications and Proposal Forms are on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York after November 15, 1954, upon application and prepayment of a fee of Five ($5.00) dollars per set of two bound copies of contract documents, no part of which will be refunded.

Bids must be made in duplicate upon the proposal forms included in and bound with contract documents. Guarantee will be required with each bid in an amount not less than 10 percent of the maximum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: December 8, 1954

Contract 772

For THE WESTCHESTER COUNTY,
NEW YORK
SANITARY SEWER DISTRICT OF
NEW ROCHELLE
WEST INTERCEPTOR SEWER
SEWAGE TREATMENT PLANT TO
HUDSON PARK

Sealed bids will be received in Room 508, County Office Building, White Plains, New York until 11:00 A.M., December 8, 1954 (Eastern Standard Time) immediately after which the bids will be publicly opened and read in Room 808 of said building.

The work under Contract 772 includes the construction of: approximately 1350 feet of Intercepting Sewer partially supported on pile foundations and consisting of an inverted siphon of two concrete pipes of 24" and 30" diameters under Echo Bay Harbor and Hudson Park; a Diversion Chamber with superstructure in Hudson Park; a valve Chamber in Hudson Park; approximately 150 ft. of 30" diameter reinforced concrete pipe sewer from Hudson Park Road to the Diversion Chamber; and the raising and connection to approximately 28 ft. of 24" and 30" mechanical joint cast iron pipe west of the existing Siphon Dewatering Chamber at the Treatment Plant site.

All contract documents may be seen in Room 508, County Office Building. Bidders may procure plans and specifications for the Contract upon a cash deposit of $20.00, which deposit will be refunded, to bidders only, provided that all plans and copies of specifications are returned in good condition within thirty days after award of the Contract or rejection of bids.

All bids must be accompanied by a certified check, payable to the County of Westchester, New York, in the amount of $20,000.00.

The County reserves the right to waive any informalities in the bids or to reject any and all bids. No bidder may withdraw his bid within forty-five days after the actual opening thereof.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF WESTCHESTER
BY: JAMES C. HARDING
COMMISSIONER

OFFICIAL PROPOSALS

Bids: December 6, 1954

Construction of Additions and Alterations to Sewage Treatment Plant

Sealed proposals will be received by the Borough of Red Bank, New Jersey, until 8:30 P.M. Eastern Standard Time, on Monday, December 6, 1954, at the Borough Hall, Monmouth St., Red Bank, New Jersey, at which time and place separate bids for the construction of additions and alterations to the Sewage Treatment Plant consisting of Contract No. 1—General Construction, Contract No. 2—Electrical, Contract No. 3—Structural Steel and Iron Works, Contract No. 4—Heating and Ventilating, and Contract No. 5—Plumbing, will be publicly opened and read aloud for the furnishing of all plant, labor and material and performing all work on said project for the Borough of Red Bank.

The project includes the construction of a grit removal unit, comminutor, primary settling tanks, two (2) separate sludge digestors, control building, chlorine building and appurtenances, the conversion of the existing settling tank to a chlorine detention unit, landscaping, and all other work required in strict accordance with the plans and specifications.

Plans, specifications, and proposal forms may be obtained at the offices of the Consulting Engineer, A. J. Lanning, 1100 South Broad Street, Trenton 10, New Jersey, upon a deposit of $50.00 for each set of documents. The "Form of Proposal" attached to the specifications obtained from the Engineer, must be used when the bids are submitted. If the documents are returned in good condition within ten (10) days after the opening of bids, $25.00 of the deposit for each set will be refunded. In the event that documents are not returned within the time stated, the entire amount of the deposit will be forfeited.

The Borough of Red Bank may require from any prospective bidder a statement showing financial ability and experience in performing public work before furnishing plans and specifications. If not satisfied with the sufficiency of the statement, the Borough of Red Bank may refuse to furnish plans and specifications to any bidder.

A certified check or a bid bond equal to 5% of the amount of the bid must be submitted with the proposal as bid security.

The successful bidders will be required to furnish a satisfactory performance bond in the sum of the full amount of the individual contracts. No bid may be withdrawn for sixthy (60) days after the closing time for receipt of bids. All proposals must be sealed and properly marked designating the contract bid upon.

Bids should be addressed to Amy E. Shinn, Borough Clerk, Borough of Red Bank, New Jersey.

The Borough of Red Bank reserves the right to reject any or all proposals and to waive all informalities and irregularities in the bids received, and to accept any proposal which is deemed most favorable to the Borough of Red Bank.

Bids: December 8, 1954

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

Contract No. C-9

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 A.M., Central Standard Time, December 8, 1954, for the performance of the contract enumerated above.

The grading, drainage, structures and paving of approximately 0.8 miles in Construction Section C-9 of the Indiana East-West Toll Road beginning at a point about 527 feet west of the centerline of Broadway at Toll Road Centerline Station 970+00 and extending eastwardly to a point about 1,707 feet east of the centerline of Virginia Street at Toll Road Centerline Station 1013+30, all in the City of Gary, Lake County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	3,500 Cu. Yds.
Borrow	27,000 Cu. Yds.
9" Reinforced Concrete Base Course	2,800 Sq. Yds.
Hot Asphaltic Concrete Surface Course	470 Tons
Culvert Pipes and Underdrains	7,000 Lin. Ft.
Steel Piling	13,800 Lin. Ft.
Timber Piling	26,000 Lin. Ft.
Concrete for Structures	13,500 Cu. Yds.
Reinforcing Steel	1,881,000 Lbs.
Fabricated Structural Steel	10,502,000 Lbs.
Metal Handrail	8,000 Lin. Ft.

OFFICIAL PROPOSALS

Copies of the Plans, Specifications and Proposal Forms for said Contract are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 A.M., Central Standard Time, December 8, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of the above Contract, if any award be made, will be to the Bidder or Bidders whose Proposal is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman
Charles W. Keating
Secretary-Treasurer

Bids: December 6, 1954

Construction of Intercepting and and Trunk Sewers and Pumping Stations

CITY OF TAMPA, FLORIDA

Sealed proposals for construction of Intercepting and Trunk Sewers and Force Mains, and for construction of Pumping Stations, will be received in the regular meeting place of the Board of Representatives, City Hall, Tampa, Florida until 10 A.M., E.S.T., December 6, 1954.

Plans and contract documents may be examined and obtained at the office of the Bureau of Sanitary Sewers, 6th Floor, City Hall, Tampa, Florida, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. A deposit of $25.00 is required for each of the two sets of contract documents.

CITY OF TAMPA, FLORIDA
By Curtis Hixon, Mayor
Dated: November 10, 1954

Read the Official
Proposal Columns of
ENGINEERING NEWS-RECORD
This Week and Every Week

OFFICIAL PROPOSALS

Bids: December 16, 1954

Additions and Improvements to Pumping Station and Sewage Treatment Works

Freeport, New York

Sealed proposals for furnishing all labor and material and doing all work for the construction of Additions and Improvements to Pumping Station and Sewage Treatment Works of the Village of Freeport, New York will be received by the Board of Sewer Commissioners of the Village of Freeport at the Municipal Building, 46 North Ocean Avenue, Freeport, N. Y., until 8 P.M. on the 16th day of December 1954 at which time and place they will be publicly opened and read.

Separate proposals will be received on the five divisions of the work as follows:

Contract A. General Construction, Additions and Improvements to Pumping Station and Sewage Treatment Works.
Contract B. Electrical Work, Pumping Station and Sewage Treatment Works.
Contract C. Heating, Sewage Treatment Works.
Contract D. Plumbing Work, Sewage Treatment Works.
Contract E. Steel Work, Sewage Treatment Works.

The information for Bidders, Form of Bid, Form of Contract including General Conditions, the specifications, the Plans the forms of Performance and other surety bonds may be examined at the office of the Village Clerk, Municipal Building, Freeport, N. Y., or at the office of Baldwin & Cornelius Co., Village Engineers, Freeport, N. Y., or at the office of Clyde Potts Associates, 30 Church Street, New York and copies thereof may be obtained at the office of the Village Clerk upon deposit of Twenty Five Dollars ($25.00) for each set, to be refunded to bidders uon return of the Plans and Documents in good condition within thirty (30) days after the opening of bids. Such deposit will not be refunded to anyone who takes out such Documents and does not bid on the work.

The Board of Sewer Commissioners reserves the right to waive any informalities in or to reject any or all bids.

Each bidder must deposit with his bid a certified check in an amount of not less than five per centum (5%) of the base bid in the form and subject to the conditions provided in the Information for Bidders.

The successful bidder will be required to furnish a performance bond and Labor and Material Bond in such form and having as surety thereon such surety company or companies as are approved by the Board of Sewer Commissioners, each in the amount of not less than 100% of the total amount of the accepted bids.

No bidder may withdraw his bid within 45 days after the date set for the opening thereof.

Documents may be obtained by prospective bidders until 4 P.M., Friday, December 10, 1954.

Dated
EDWARD M. VOELKER, Chairman
MICHAEL J. COFFEY
HAROLD K. BLINN
Board of Sewer Commissioners of the Village of Freeport, N.Y.
Milford F. Van Riper, Secretary

U. S. Government

Department of Commerce, Bureau of Public Roads, November 18, 1954. SEALED BIDS will be received at the office of the Bureau of Public Roads, Room 6006, General Services Building, Washington 25, D. C., until 11:00 A.M., E.S.T. December 23, 1954, for construction of Project R-3, Rama Road in the Republic of Nicaragua. 19.577 Kilometers (12.138 miles) Grading, Draining, Borrow Base Course, Bridges and other work from Villa Somoza easterly, Republic of Nicaragua. The approximate quantities of the more important items are as follows: 580,000 cubic meters Excavation; 41,500 cubic meters Selected Borrow Base Course; 1700 cubic yards Class A Concrete; 200 tons Reinforcing and Structural Steel; 4570 lin. ft. metal culverts; Special conditions of work as performed by U. S. Government in foreign areas apply as well as local laws. Plans, Specifications and Proposal Forms are available upon request at the address given above or Bureau of Public Roads, 516 Roosevelt Avenue, Managua, Nicaragua. F. V. du Pont, Commissioner

OFFICIAL PROPOSALS

Bids: December 21, 1954

Conant-Mt. Elliott Relief Sewer

Sections, 4, 5, 6 and 7
Department of Public Works
City of Detroit, Michigan
Contracts PW-1435, 1436, 1437 and 1438
Special Notice

Sealed proposals for a sewer, located in Mt. Elliott Avenue and in Conant Avenue, extending from Ferry northward to Seven Mile Road, addressed to the City Engineer's Office Department of Public Works, of the City of Detroit, and endorsed: "Proposal for Contracts PW-1435, PW-1436, PW-1437, and PW-1438." Will be received at the Office of the City Engineer, 30th floor, Guardian Building, Detroit 26, Michigan, until 2 P.M. City of Detroit Time, on December 21, 1954, at which time they will be publicly opened and read aloud. Any proposal received after the above-mentioned time will be returned to the bidder unopened.

The work is separated into four contracts, namely PW-1435, PW-1436, PW-1437 and PW-1438. All construction is in City of Detroit Streets, except as otherwise noted below Bidders may bid on each contract separately or may submit a bid on any combination of two, three or all four contracts.

The work included in contract PW-1435 consists of approximately 0.95 mile of 16'-3" inside diameter sewer to be constructed in tunnel under Mt. Elliott Avenue between Ferry and Dunn Road.

The work included in contract PW-1436 consists of approximately 1.05 miles of 15'-6" inside diameter sewer to be constructed in tunnel under Conant Avenue between Dunn Road and Norwalk. About 60 percent of this construction is in the City of Hamtramck.

The work included in contract PW-1437 consists of approximately 1.06 miles of 15'-6" inside diameter sewer to be constructed in tunnel under Conant Avenue between Norwalk and Lawley. About 40 percent of this construction is in the city of Hamtramck.

The work included in contract PW-1438 consists of approximately 1.60 miles of 15'-6" inside diameter sewer to be constructed under tunnel under Conant Avenue between Lawley and Seven Mile Road.

The contract documents, including notice to bidders, form of proposal and agreements, drawings, and specifications may be examined at the Office of the City Engineer, during business hours, and copies may be obtained by making a deposit of $25.00 per set, which includes all contracts, which sum will be refunded upon the return in good condition of the complete set of Contract documents within ten days after receipt of proposals, or if used in submitting a Bona Fide Proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount of not less than 5 percent of the total bid price, as security for the acceptance of the contract.

All checks shall be made payable to the Treasurer, City of Detroit.

No bid after being submitted, may be withdrawn for at least 45 days after the actual opening of bids.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

CITY OF DETROIT
GLENN C. RICHARDS
Commissioner of Public Works
M. F. WAGNITZ
City Engineer

Bids: December 8, 1954

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

Contract C-15
Contract C-16
Contract C-15 and C-16

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 A.M., Central Standard Time, December 8, 1954, for the performance of each of the contracts enumerated above.

CONTRACT NO. C-15

The grading, drainage, structure and paving of approximately 3.6 miles in Construction Section C-15 of the Indiana East-West Toll Road beginning at a point about

OFFICIAL PROPOSALS

892 feet west of Salt Creek at Toll Road Centerline Station 1597 + 00 in Porter County and extending easterly to a point about 320 feet west of Campbell Road at Toll Road Centerline Station 1786 + 60 in Porter County, Indiana. The approximate Quantities of the major items of construction are as follows:

Common Excavation	29,000 Cu. Yds.
Borrow	1,192,000 Cu. Yds.
10" Reinforced Concrete Pavement	98,000 Sq. Yds.
Culvert Pipes and underdrains	8,000 Lin. Ft.
Cast-in-Place Concrete Piling	23,000 Lin. Ft.
Concrete for Structures	5,600 Cu. Yds.
Reinforcing Steel	781,000 Lbs.
Fabricated Structural Steel	1,912,000 Lbs.

CONTRACT NO. C-16

The grading, drainage, structures, and paving of approximately 3.4 miles in Construction Section C-16 of the Indiana East-West Toll Road beginning at a point about 320 feet west of Campbell Road at Toll Road Centerline Station 1786 + 60 in Porter County and extending eastwardly to a point about 697 feet east of the Section Line Road, Section 17-36-5 and Section 16-36-5, at Toll Road Centerline Station 1967 + 40 in Porter County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	711,000 Cu. Yds.
Borrow	2,500 Cu. Yds.
10" Reinforced Concrete Pavement	117,500 Sq. Yds.
Culvert Pipes and Underdrains	27,000 Lin. Ft.
Cast-in-Place Concrete Piling	17,000 Lin. Ft.
Concrete for Structures	5,000 Cu. Yds.
Reinforcing Steel	710,000 Lbs.
Fabricated Structural Steel	1,233,000 Lbs.

The work covered by Contract C-15 and C-16, which covers a combination of Construction Sections C-15 and C-16, is the construction as above described for the individual Construction Sections, taken together.

Copies of the Plans, Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road.....$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section $25.00
Informational Drawings
Cross-Sections, per set, per Construction Section $25.00
Soil Plan and Profiles, per set, per Construction Section .....$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Section, the Construction Section thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 A.M., Central Standard Time, December 8, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger, Chairman
Charles W. Keating
Secretary-Treasurer

THE LOUISIANA DEPARTMENT OF HIGHWAYS

Needs Experienced . . .

- RODMEN
- INSTRUMENTMEN
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- CIVIL ENGINEERS

Permanent Positions. Many Benefits such as group life insurance, hospitalization, retirement, vacation and sick leave with pay, excellent chance of promotion. Work under top engineers with average 24 years service in the Department of Hwys.

FOR FULL INFORMATION AND APPLICATION FORMS WRITE:

STATE DEPT. OF CIVIL SERVICE
P. O. Box 4095
Baton Rouge 4, La.

BRIDGE ENGINEERS AND SPECIFICATION WRITERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

CIVIL ENGINEER

New Jersey license, for work in Union County. Experienced in land subdivision, surveying, construction of sanitary and storm sewers, road building. Write stating age, experience, education. All replies held strictly confidential.

P-4616, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

NEW BUSINESS ENGINEER

Established engineering-construction management firm has opportunity for Engineer who has successful background in selling services for design of industrial chemical plants, public works, architectural. Write fully giving details of past similar selling.

P-4618, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CIVIL ENGINEERS

Junior positions in California's huge highway program. High level professional experience with excellent promotional opportunities offered to recent college graduates in civil engineering. $376 to start with raise after six months. Positions open at this level only. Write Section E, State Personnel Board, 1015 L Street, Sacramento 14, Calif.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

EXPERIENCED ESTIMATOR and Chief Engineer, capable of preparing estimates, helping price, purchasing, expediting and job management. Permanent position for top man with Mid-West general contractor specializing in industrial, commercial and public works. Send complete history, including education, past experiences, references, salary expected and photograph if available. P-4417, Engineering News-Record.

ESTIMATOR—EXPERIENCED to take off and price structural steel and miscellaneous iron work for buildings and bridges, by progressive firm in Eastern Virginia doing 8 to 10,000 tons yearly. Pleasant working conditions in modern air conditioned office. P-4519, Engineering News-Record.

SUPERINTENDENT—DREDGING operations. We have an opening for a qualified dredgeman, capable of estimating, organizing and supervising hydraulic and dipper dredge work. Qualified persons should submit a complete resume stating experience, education and salary requirement. All replies treated confidential. Interviews arranged for qualified applicants. P-4469, Engineering News-Record.

LICENSED PROFESSIONAL Engineer, New York State, or eligible for license. Design of Sewers and other municipal improvements. City over 100,000. P-4465, Engineering News-Record.

WANTED: ASSISTANT to Director of young and progressive Southern Port. Engineering degree and administrative training essential. Please give complete history, education, experience, age, family data, salary expected and availability by addressing Box P-4493, Engineering News-Record.

CIVIL ENGINEER. Graduate. Immediate opening in office with Consulting Engineering firm of over 30 years. Location, Dallas, Texas. State experience, salary desired and when available. P-4481, Engineering News-Record.

SANITARY ENGINEER to direct comprehensive sanitation program. Salary $5460-$6360, Cattaraugus County Health Department, Olean, New York.

CIVIL ENGINEERS, graduates, minimum four years experience, age to 40, long job located in Connecticut, heavy construction. Send resume to: Foley Employment Agency, 44 State Street, Hartford, Connecticut.

STRUCTURAL AND reinforcing steel detailers, checkers and estimators wanted. Must be experienced. Engineering degree desirable but not essential. Unusual opportunities exist for men qualified to assume responsibility in a young, aggressive, and expanding organization. Reply giving brief resume of experience, education, availability and salary expected. Allen Steel Company, P. O. Box 1858, Salt Lake City, Utah.

FLUID MECHANICS teaching and research, Ph.D. desired, one-third time teaching and direction of graduate work, two-thirds time research in sedimentation, surface waves and turbulence. Rocky Mountain region. Salary depending on qualifications. P-4614, Engineering News-Record.

ENGINEER—EXPERIENCED in design, operation and maintenance for a group of water supply properties on Long Island. Salary commensurate with ability. Must be capable of handling electrical and mechanical maintenance of deep well and related pumping and control equipment. Interview arranged on basis of letter stating qualifications, educational background and salary desired. P-4547, Engineering News-Record.

ENGINEER EXPERIENCED in the design of sewers, water systems, water treatment and sewage treatment plants, industrial and municipal structures. Must be experienced in design and general supervision and have executive ability. Permanent position. State age, education, experience, references, salary requirements and when can report. P-4571, Engineering News-Record.

ENTERPRISING CONSTRUCTION company in Northern New York wishes to engage a graduate engineer, preferably one with some building construction experience, who has an interest in becoming an Estimator. This is a permanent position. P-4570, Engineering News-Record.

BUILDING ESTIMATOR—for General contractor—Northeastern Ohio. Good opportunity. Reply fully, stating education, experience, personal data and minimum salary requirement. P-4573, Engineering News-Record.

(Continued on opposite page)

SALES ENGINEER WANTED

Tractor manufacturing company has excellent opportunity for experienced man in crawler-tractor sales. Age 28 to 45. Furnish complete resume and photograph (if available). Should have capabilities of development into Sales management. Excellent salary for qualified man.

P-4621, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

STRUCTURAL DETAILERS

Prominent firm in Cleveland, Ohio has opportunities for draftsmen experienced in the preparation of steel details for shop fabrication of industrial building frame works.

Good working conditions, paid holidays, established vacation and sick leave plans. Hourly rate.

Applications to be considered must give full particulars as to education, experience, and salary desired in first letter.

P-4462, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS
Foreign Service

Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30
ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE, NEW YORK 22, N. Y.

ENGINEER

Engineering Department of expanding Northern New York Construction Corporation wants Engineer proficient in Structural and Building Design, Field Supervision, Layout and Cost Control. Prefer with 4-5 years Construction Experience. Mechanical-Civil Background desirable. Should be Registered Professional Engineer or Eligible for Registration. Give full particulars in reply to

P-4615, Engineering News-Record
330 W 42 St., New York 36, N. Y.

GENERAL MANAGER CONSTRUCTION

Thoroughly familiar with all types of heavy construction. Must have capacity to inspect job possibilities with objective of bidding them. Must set up equipment production, construction schedules, and review bids as they are prepared by the Chief Engineer. Will be responsible for all construction operations, soliciting and procurement of new business and negotiations with clients. Must have a good engineering background, and at least fifteen years of heavy construction experience in a definite supervisory capacity. Permanent Position.

P-4595, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

DESIGNING ENGINEERS
Experienced

Structural Steel & Foundation Design
Bridges, Conveyors, Highways
Draftsmen with varied experience
Mail complete resume with salary requirements

TRYGVE HOFF & ASSOCIATES
1922 E. 107th St. Cleveland 6, Ohio

POSITIONS VACANT

(Continued from opposite page)

CHIEF ENGINEER—Sales—Nationally known construction firm (heavy and railroad) specializing in concrete construction desires sales manager to plan advertising and promotional literature, direct sales efforts of representatives, contact designing engineers, address meetings, and present technical papers. Base salary plus incentive compensation. P-4572, Engineering News-Record.

SALES ENGINEER to organize Branch Office in Texas. Must have sales ability and concrete mix design and construction experience. Interesting, long term position. Sika Chemical Corporation, Passaic, New Jersey.

SALES ENGINEER to singlehandedly evaluate potential and develop sales for concrete spraying machine and other new equipment and methods used in heavy construction work. Considerable travel. P-4601, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES ENGINEER — New England territory open with established national concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. SW-4370, Engineering News-Record.

EMPLOYMENT SERVICES

OVERSEAS PROJECTS Guide to most active construction-engineers, oil co's., gov't & UN groups hiring for foreign projects. Send $1. Cove-McKane Int. GPO Box 126E, NY 1, NY.

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

OFFICE MANAGER familiar all phases construction contracting business. Many years experience large projects Branch Offices Latin America. Speaks, reads, writes Spanish. Available immediately. PW-4525, Engineering News-Record.

THOROUGHLY EXPERIENCED construction executive seeks contact with general contractor, preferably in New York area, requiring top man as executive or to handle large project, where volume and scope will permit full use of ability of man qualified to handle every phase of contracting, field and office, buildings and heavy construction. PW-4433, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — Can handle field and office. 24 years experience heavy construction and housing. Prefer bonus proposition. Job location immaterial. PW-4413, Engineering News-Record.

GENERAL SUPERINTENDENT — 25 years field and office experience, heavy and engineering construction. Desires position in middle Atlantic or southern states. Resume if desired. PW-4436, Engineering News-Record.

PROJECT SUPERVISOR: General Superintendent; owners, architect superintendent: 30 years experience light & heavy construction; air bases, roads, industrial buildings, stateside, overseas. PW-4537, Engineering News-Record.

CIVIL ENGINEER, M.ASCE. 59, degrees, state licenses. 35 years experience; design, construction, and administration; bridges, parkways, thruways, airports, harbor works, railroads, underpinning and foundations. PW-4482, Engineering News-Record.

CONSTRUCTION ENGINEER — graduate C.E. experienced as Project or Office Engineer. Resident, division supt., field supt., estimating, scheduling, cost analysis. Also successful sales experience. Age 54. Salary $750-$850. Relocate. PW-4459, Engineering News-Record.

MASTER MECHANIC, have thorough knowledge all types heavy equipment. 25 years experience, including actual repairing also supervision of maintenance and operation. No preference to location. Seeking permanent connection. PW-4524, Engineering News-Record.

TOP FLIGHT Engineer Estimator age 51. Complete charge office routine and estimating for many years. Public buildings & private work of all kinds. Single jobs up to $20,000,000.00. Have had successful experience solely with contractors over period of many years. Would consider suitable connection in California. PW-4620, Engineering News-Record.

BLASTER AND rock superintendent, with 25 years experience in all types of blasting. Capable of handling all rock jobs, from start to finish; under water, open cut, tunnel or swamp, drilling and blasting; wishes position on yearly employment basis, willing to travel. PW-4612, Engineering News-Record.

POSITIONS WANTED

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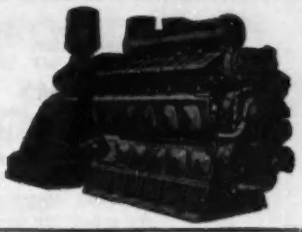

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EDITORIALS

Fire Losses Must Be Reduced

FIRE LOSSES IN THE U.S. get larger every year, and 1953 was the worst on record, according to figures just released by the National Fire Protection Association. What is particularly noteworthy is that the great bulk of last year's loss occurred in building fires.

NFPA reports in the current issue of its Quarterly that in 1953 fire losses exceeded the billion-dollar mark for the first time; also that it was the fifth successive year in which U.S. fire losses increased. Making up 90% of the total were 727,000 building fires, which did damage amounting to nearly $890 million, a 12% greater loss than in 1952.

This concentration of fire losses in buildings should be of deep concern to everybody because of the higher probability of becoming a fire casualty, and because the cost is so widely distributed through higher fire insurance rates. And builders, building designers and building officials should find additional cause for worry in the fire statistics because of the opportunities often available to them to prevent fire loss through better construction.

Nobody knows exactly how much of the property damage and loss of life could have been prevented by better building design, but reports on some of the largest fires indicate that faulty design was at least a factor. Post-mortems on the conflagration that destroyed the huge General Motors plant at Livonia, Mich., (which accounted for almost half of the increase in fire losses in 1953 over 1952) revealed several ways in which the building could have been improved to retard the spread of fire. And it is significant that these suggestions coincide with previous fire-safety recommendations of the NFPA based on statistical studies of fires.

What is most disturbing about the NFPA report on last year's fires is that fire safety is lacking in many structures where it is most badly needed because of the type of occupancy. The frequency of fatal fires in nursing homes, for example, now ranks far above that for schools, hospitals and orphanages. And one of the major reasons for loss of life in nursing-home fires is that ordinary hazards become death traps when the occupants are bed-ridden patients and slow-moving elderly people.

Yet, the precautions that should be taken are neither difficult nor costly—adequate exits, fire-resistant trim and furnishings, segregation of hazardous areas, fire-stopping in walls, sprinkler protection, fire-warning systems and conveniently located fire extinguishers.

The new record for fire losses is a warning signal than an organized effort must be made to reduce them. And architects and engineers can play an important role in this; for while most up-to-date building codes contain provisions that would insure fire safety—if enforced—the fact is that many building codes are not up-to-date or are not being enforced. This situation could be rectified if architects and engineers would press their local legislatures to pass corrective legislation, and would increase their assistance to building officials charged with enforcing the regulations. Fire losses can and must be reduced.

International Power Problems

PLANS FOR STORING WATER in reservoirs in Canada for the generation of power in hydro plants on the Columbia River in the United States point to the growing urgency of the power situation in the Northwest. But, more important, they focus on the need for an international agreement on the Columbia.

The background of the situation is this: One of the large users of power, the Kaiser Aluminum & Chemical Corp., has proposed a dam at the outlet of Arrow Lake (about 40 miles north of the international border) to store 3,000,000 acre-ft of water (ENR Oct. 14, p. 24). That water could be used to produce more power at all the hydroplants on the Columbia River in the United States from Grand Coulee down to Bonneville, most of which are owned by the U. S. government. Another proposal calls for a combined power and storage project still farther up the Columbia River in British Columbia at Mica Creek (ENR Apr. 29, p. 23).

The Kaiser organization is reported to have entered into an agreement with the government of British Columbia to furnish it with power in an amount equal to 20% of the increased output of the downstream plants in the United States. That agreement, however, can be nothing more than an expression of willingness on the part of the B. C. government to give receptive consideration to such a proposition. The Kaiser organization has no power to make such a commitment concerning the output of plants owned by the U. S. government, nor probably can the B. C. government so commit Canada.

What appears probable is that the Bonneville Power Administration, which handles distribution of power from government-owned plants on the Columbia, has suggested that such a payment plan would be reasonable. Only Congress, however, could make such a commitment, and, presumably, it would only be made as part of an international agreement recommended to Congress by the International Joint Commission.

The IJC is now engaged in making a study of the overall power possibilities of the entire Columbia River basin. Meanwhile, studies for the Arrow Lake and Mica Creek storage projects can go forward, but actual construction must await an international agreement—ordinarily a slow process, but in this case worth whatever acceleration is possible.

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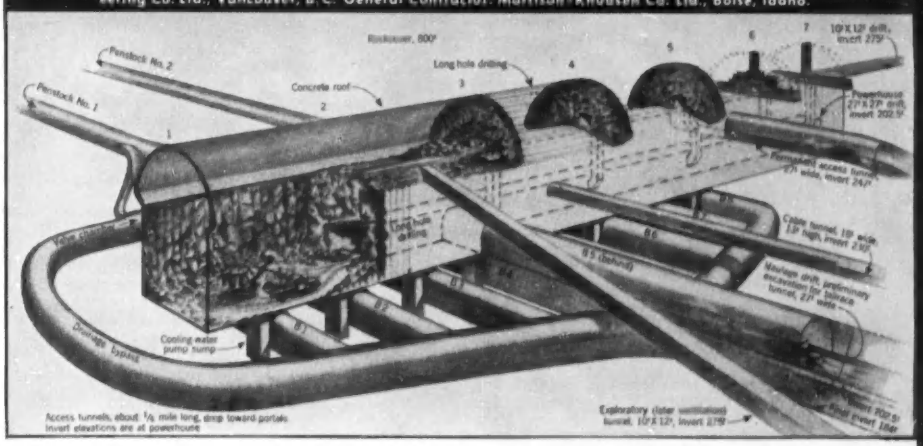
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(upper left) Laying Hot-mix Texaco Asphaltic Concrete over old rigid pavement on Delaware State Route 18.

(upper right) Close-up showing the two courses of Texaco Asphaltic Concrete used on Delaware resurfacing project.

(lower left) Traffic used the State Highway without interruption while new surface was under construction.

(lower right) Section of completed pavement before shoulders received three applications of Texaco Cutback Asphalt.

Delaware's answer to:

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Pictured here is a recent resurfacing project of the Delaware State Highway Department, located on its Route 18. The new Texaco Asphaltic Concrete pavement constructed on this highway was laid in two courses having a combined thickness of 3¾ inches.

Sound engineering practice dictates that when a new asphalt wearing surface is laid over an old rigid pavement, it should have a minimum thickness after compaction of 2½ inches to deliver lasting service with lowest upkeep. The thickness to be specified for a particular project must be based on an accurate knowledge of the volume and weight of traffic to be served.

Where necessary, undersealing of the old pavement with asphalt before resurfacing will greatly enhance the performance of the new asphalt wearing surface.

Whatever your street, highway or airport paving problem, there is a Texaco Asphalt Cement, Cutback Asphalt or Slow-curing Asphaltic Oil exactly suited to your needs. These products are used in the construction of Plant-mixed and Penetration Macadam pavements for heavy traffic; low-cost, intermediate-type asphalt surfaces for secondary roads and streets; as well as inexpensive surface-treatments. Helpful information regarding materials and methods recommended for all types of Texaco asphalt construction is provided in two free booklets, which you can obtain without obligation by writing our nearest office.

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